THE GOVERNMENT OF CEYLON

Six-Year Programme of Investment

1954/55 to 1959/60

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A64
1954/55 - 1959/60
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PLANNING SECRETARIAT

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Planning Secretariat

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FOREWORD

THE Government has pleasure in presenting its Six-Year Programme. Totalitarian States have shown the world how to work to a Plan through their customary methods. Democracies like ours, however, depend on patriotism, and the love and affection that the sons and daughters of the soil have for their country to bring a Programme such as ours to fruition.

Our own aim must not merely be to work the Programme to a date. Having seen public money spent over nearly a quarter of a century during my association with the legislature of this country, I hold the view that in Colonial times the country got barely half the value for the money it spent. The Independence we have achieved would mean nothing if our love for our country does not manifest itself in obtaining at least value for the money we spend today. In other words, we must aim at getting at least a rupee's worth for every rupee that the Government spends.

I must elaborate somewhat on this theme of public expenditure. In Colonial times public servants worked for their pay; some people tried to evade paying their due share of taxes, while among those who had nothing there were people who were out to put Government property and Government money into their pockets. The success of this Programme depends principally on the Public Service of Ceylon. A Government Servant today is no longer a mere employee. He is a partner in the development of his own country. His aim should therefore not be to have his emoluments paid on the basis of the revenue of the country, which must be put to the most productive use. His profits will come in the form of better living conditions and amenities for his children. There could be no more laudable end for which a man could give his services.

a——J. N. R 2861—2,000 (6/55)

The co-operation of the private sector is specially important. Every house that is built, every road that is opened and every well that is constructed in the rural areas by the people is a contribution from the private sector. The Government and the private sector are therefore like oarsmen in a boat. While they must row together, they must ensure that they also row in rhythm, for it is only in a spirit of co-operative endeavour that we can reach the promised land of contentment and prosperity that will give us confidence in ourselves as a nation.

J. L. KOTELAWALA,
Prime Minister.

Colombo,
July 13, 1955.

INTRODUCTION

THE duty of writing an introduction to this publication has fallen on me. The Six-Year Programme of Investment which is presented here is not the work of the Finance Minister alone or of any single Minister. It must be regarded as the co-ordinated programme of the whole Cabinet. However, it is not inappropriate that the Minister of Finance should write this introduction as the subject of finance pervades every conceivable government activity and it is the Finance Minister who has to find the money for these schemes.

Within the covers of this book one would find an attempt to marshal the resources of men and materials in such a way as to derive the maximum benefit for our country. On these foundations we build our hopes for the future.

In Chapter 4 of Part I appears a summary of the Programme. For the purpose of this introduction it will suffice if I merely focus attention on some of the main items. The Programme provides for the absorption of about 136,000 unemployed; the generation of 25,000 additional kilowatts of electrical energy; the transformation of 120,000 acres of barren land into paddy fields. Due attention is being paid to industrial development. The tempo of Health, Education and Social Services is sustained in the Programme. The cultural side of our activities has not been neglected; a fair amount of money is being devoted to the rebuilding of the Sacred City and the rehabilitation of our past arts of a forgotten era.

The question naturally arises as to how these plans are to be transformed into reality. No plan, however complete, can bear fruit if it is not properly handled at the execution stage. At this

stage a new factor comes into play. By and large the Government has to depend on the Public Service for the execution of the Programme.

This perhaps gives a second reason why it is opportune that the Minister of Finance should write this introduction and I therefore take this opportunity of issuing a clarion call to the Public Service. If the Programme is to succeed, it is essential that the Public Service should maintain the highest standards of integrity and efficiency.

Efficiency means the achievement of maximum results with the minimum expenditure of men and materials. The transformation of the State from a purely regulatory one to a Welfare State has brought in its wake very many problems and the Public Service today is being called upon to undertake more and more activities of a complex nature such as certain commercial undertakings. This has necessitated the devising of new methods and new ways of tackling problems. It is therefore all the more necessary that Heads of Departments should constantly keep their departmental methods and organisation under review. In particular, one of the fruitful causes of departmental inefficiency is the reluctance of superior officers to delegate their authority, with the result that too few men carry too big a load. It is also a necessary corollary to any plan that there should be some means of assessing results to show how progress has kept pace with the plan ; Heads of Departments should therefore constantly check up the progress made against selected control points.

Whatever I have stated above applies to every part of the Public Service. However, it is imperative for me to devote some special attention to our District Administration, which is centred round our Kachcheries for, not only are our schemes so indissolubly

interwoven with our rural areas, but also by and large the greatest area of contact between the people and the Government takes place in the Districts, rather than in the sheltered headquarters offices.

From the Public Services I now come to the Public itself. It is hardly necessary for me to tell them that this Programme cannot achieve results worthy of the name without the understanding and support of the people. The official machinery alone cannot carry out this project which requires the initiative and participation of the people themselves in the various development projects. This can be achieved by kindling the spark of enthusiasm in local elements to improve village conditions and promote co-operative effort. It is a matter for satisfaction that a certain amount of work in this direction is being done by the Rural Development Department and the idea of self-help is catching on. The growth of our cottage industries, which is so essential for the relief of unemployment, depends to a large extent on co-operative effort.

This Programme should not be regarded as that of an authoritarian state forced on an unwilling people ; it may conflict with the ideals of some sections of the people while on the other hand it may fall far short of the expectations of others, but such a measure of disagreement is the essence of democracy and is inherent in any form of democratic planning ; I am however confident that the Programme will, to some extent, be an answer to our pressing problems such as unemployment and low living conditions, and it will fulfil the desires and wishes of the majority of our people.

Colombo,
July 13, 1955.

M. D. H. JAYAWARDANE,
Minister of Finance.

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PART ONE

Six-Year Programme—Overall Aspects

PART ONE

Six-Year Programme—Overall Aspects

CHAPTER 1

THE ECONOMIC PROBLEM IN OUTLINE

THIS volume presents a programme of investment for the Ceylon Government over the period 1954/55 to 1959/60. The specific factors which have determined, in each sphere, the composition of this programme are explained in the several chapters that follow. The programme as a whole, however, is intimately related to the general problem of economic development. It may, therefore, be useful to preface an analysis of the programme itself with a bare outline of the elements of a process of development. A more detailed discussion of the general problem of growth and expansion is to be found in Part IV of this work. The present chapter is merely of a general and introductory nature designed to single out the principal relationships which influence and determine the pace of development.

The general outlines of the economic problem facing Ceylon are now familiar and do not need detailed elaboration. Population growth in the country has been exceptionally rapid in recent years whilst average standards of living remain relatively low. The broad solution to this problem is an expansion in the productive capacity of the economy. The rate of such an expansion must be sufficiently rapid not merely to keep pace with but also to outstrip population growth.

An expansion of the economy is also the solution to many of the ancillary problems which arise. The growth in population has meant an increase in the numbers of people of working age and this has raised the problem of employment opportunities. It is mainly a process of expansion that can provide increased employment to the additional population. Similarly, a process of expansion is the long run solution to the problem of instability. It is only through such a process that a diversified and balanced structural pattern could be established. Expansion is, further, a means to a better distribution of income since a diffused distribution of a restricted national income would make only a negligible contribution to the living standards of the lower income groups.

There has, of course, been a certain amount of expansion in the Ceylon economy in recent years. The data at hand suggest that even when corrections are made for changes in prices the expansion in National Income since 1938 has on average moderately exceeded the growth of population. Drops in income have, however, occurred in individual years on account of cyclical and other external factors. This is shown by the figures below :

Per Capita Income 1938–1953

(at constant prices)

Year	1938	1947	1948	1949	1950	1951	1952	1953
National Income at current prices* (Rs. million) ..	596..	2,509..	2,799..	3,013..	3,796..	4,527..	4,441..	4,419
National Income at 1938 prices* (Rs. million) ..	596..	732..	929..	978..	1,115..	1,269..	1,238..	1,218
Estimated mid-year population ('000) ..	5,826..	6,903..	7,109..	7,321..	7,554..	7,742..	7,940..	8,155
Per Capita income at 1938 prices (Rs.) ..	102	106..	131..	134..	148..	164..	156..	149

Source : Department of Census & Statistics. Figures given are provisional.

It must be emphasised, however, that the whole of the rise in national income shown above is not due to an expansion in the productive capacity of the economy. Favourable movements in the terms of trade have also made their contribution. These movements are of special importance to the economy of Ceylon. They make possible the exchange of a given volume of exports for a larger quantity of imports. The future of the terms of trade, however, is uncertain and the contribution they may make to national income and living standards in the years to come cannot be assessed. They would, if favourable, facilitate the entire process of development. On the other hand, they may, if adverse, offset much of the gains brought on through an expansion in the economy. It is unfortunately difficult for any system of planning or programming to take account of this factor.

The minimum degree of expansion required in the future is determined by the rate of population growth. In Chapter 2 of Part IV of this volume

* This series excludes dividends and interest accruing to non-residents.

some tentative projections have been made, on the basis of varying assumptions, of the possible course of future population. The medium or average projection resulting from these exercises is shown below :—

Projected Growth of Population

Year	*Estimated Population ('000)*	*Year*	*Estimated Population ('000)*
1955	8,576	1965	11,248
1956	8,832	1966	11,556
1957	9,088	1967	11,864
1958	9,344	1968	12,172
1959	9,600	1969	12,480
1960	9,856	1970	12,788
1961	10,135	1971	13,143
1962	10,413	1972	13,498
1963	10,692	1973	13,853
1964	10,970	1974	14,208

The average rate of population increase during the first ten years is, on the basis of these figures, about 2.7 per cent. This latter figure suggests the minimum rate at which national income must increase if income per head is to be maintained in the face of population growth. A higher rate of increase in national income would be needed if income per head is to improve over its present level.

An expansion in national income implies broadly an expansion in output. Two of the most significant means of bringing about an expansion in output are, simple improvements in methods of production on the one hand, and a higher volume of investment on the other. The scope for increasing output through improvements in methods is particularly large during the early stages of development specially in such spheres as agriculture. Improvements of this kind do not usually involve large quantities of capital. They are, therefore, of particular importance in countries where capital is scarce. Programmes and policies for the economic development of Ceylon must, for this reason, place a substantial degree of emphasis on improvements in methods of production.

Investment and Output

SIMPLE improvements in methods of production which do not require extensive capital equipment can, however, go only part of the way towards

increasing output. An increase in output is also dependent in large part on an expansion in the volume or stock of capital. Capital, of course, is not confined to items of machinery or equipment. It includes roads, harbours, communication systems, buildings, irrigation works, power projects and all durable assets which contribute, in one way or another, towards an expansion in output. The process of investment is none other than the augmenting of the stock of capital. The problem of expanding output is, therefore, in large measure a problem of increasing investment.

An expansion in the volume of total investment is, for the reasons stated above, of crucial importance to the development of Ceylon. According to the national income estimates the rough total of gross investment in Ceylon in 1954 was Rs. 500 million. This represents a share of 10.5 per cent. of the total of national income. A scale of investment of this magnitude would, of course, make its contribution towards an expansion in future output. But it is possible that this increase in output may prove inadequate to keep pace with population growth. A stepping up of the volume of total investment in the years to come is, therefore, of considerable importance.

An expansion in the volume of investment involves the application of additional resources to capital formation. These resources may come from either external or domestic sources. External resources, whether in the form of grants, loans or private investments, help either to expand the total of investment in the economy or to reduce the pressure on domestic resources of carrying out a given level of investment. The creation of conditions suitable for the investment of both foreign and local capital is, therefore, an important aspect of government policy.

An expansion in the volume of investment out of local resources can be brought about in one of three ways. There is, first, the possibility of diverting resources to investment through a reduction in the total consumption of the community. Such a process, however, is barely feasible in conditions where the average standard of consumption is already low. The second possibility is to devote to investment a substantial share of future additions to total incomes. A process on these lines is more practicable since it involves not a reduction in consumption, but a 'ploughing back' to future investment of part of the *additional* incomes which arise out of initial investments.

Such a process does, of course, require that the whole of the future additions to income are not devoted to consumption. A part of the former must be saved or taxed away and thus applied to additional investment. A progressive expansion in the volume of total investment out of domestic resources is in this way possible from year to year. Such an expansion is

consistent with the maintenance or even the gradual improvement of consumption levels. The third of the possibilities is to mobilise idle or unemployed resources for capital formation. Unemployed labour may, for instance, be applied to such types of basic capital as roads, dams and buildings. A process on these lines does, of course, involve a number of problems of organization and finance. But it forms the basis of community benefit and rural development projects, which apply voluntary labour to capital works.

Investment and Employment

IN addition to raising the total of national income, a stepping up of investment is also a means to the solution of some of the other urgent problems confronting the economy. A growth in population as mentioned earlier will involve a progressive addition to the number of people of working age. This raises the problem of unemployment. It is important to recognize that both the causes and the solutions to the problem of unemployment in countries like Ceylon differ from those in the more advanced or industrialised countries. In the latter the existing capital stock is generally able when working at full capacity to provide employment for virtually the whole workforce. Problems of unemployment arise when conditions of demand make it unprofitable for existing units to continue producing at capacity. The remedies for this type of unemployment are, therefore, largely of a monetary nature. They involve the maintenance of aggregate demand at a high level. In countries like Ceylon, unemployment is sometimes caused by factors of a similar kind. But there is in addition a further cause which arises out of the structural properties of the economy and which is not of a short term character. This is the shortage of complementary capital. Unemployment is likely to remain even in the presence of a high level of monetary demand because the existing number of farms, plantations, factories, and other productive units are inadequate to provide employment to the full labour force. It is only through a process of investment that the complementary capital required to provide a higher volume of employment could be supplied.

The process of investment is creative of employment in two ways. On the one hand, the construction of capital works itself requires labour and provides employment of a temporary kind. On the other, the operation of these works, once completed, involves the recruitment of a permanent labour force. In a phase of rapid expansion the first factor is itself likely to be of considerable importance. A rising level of investment will make possible the continued employment of increasing numbers on development works. But constructional employment of this kind is essentially of a

revolving character. The more long term contribution to employment is on the operational side. Even a static level of investment expenditure over a period leads to a progressive expansion in employment since additional labour would be required to operate or run a succession of completed projects.

Special mention may, perhaps, be made of what has sometimes been called 'pseudo-employment', where the wages paid to the newly employed are not provided for out of additional production but have to be subsidised by the rest of the community. Employment of this sort is only of significance as an instrument for the distribution of incomes. It is not accompanied by an expansion in the productive capacity of the economy.

The problem of providing employment opportunities is not exclusively one of creating additional wage jobs. In the rural areas where a substantial part of the future increase in population is likely to be found, the problem is one of creating the opportunities for better living. Investments designed to improve the productivity of land and to settle peasant farmers are, therefore, comparable to investments in the urban areas which provide wage employment.

Within a given total of investment, employment can be increased by the use of labour intensive techniques. Countries which are short of capital must seek methods which produce a given volume of output with less of capital and more of labour. This does not, however, mean that there should be an indiscriminate application of labour intensive techniques. In conditions where capital is short, the aim should be to use this capital in such a way as to yield the largest return in the form of output. It is only where labour intensive techniques satisfy the criterion of minimising the so-called ratio of capital to output that they should be adopted. This involves the search for a technology which suits the requirements of countries like Ceylon. It involves, in other words, a search for methods of production and for fields of investment which combine efficient methods of production with a widespread use of labour. This applies to labour intensive methods of construction as well as of production. It is also true of both industry and agriculture.

A tentative attempt has been made to assess the employment that is likely to arise out of the programme itself. This includes both constructional and operational employment. The results are presented in a subsequent chapter. The employment created by the programme is, however, only a segment of the total of additional employment in the economy. The latter would include the employment arising out of the investment

activity of the private sector. Such activity could arise in certain cases independently of the Government programme. But there is a wide field over which the programme itself is likely to stimulate private investment.

Investment and Stability

IN addition to its contribution towards an expansion in output and employment, a rising volume of investment will also offer a solution to the problem of instability caused by external fluctuations. The long term solution to the latter problem is a process of balanced growth leading to a more diversified economic structure. Investments which help to create an industrial sector and to produce a larger proportion of the countries requirements of foodstuffs satisfy this objective. A process of this nature is not, in practice, inconsistent with attempts to improve the productivity of the export sector. There is not an unlimited amount of scope for an extension of the latter. An expanded volume of investment may, therefore, have to be channeled into new avenues of development in the domestic sector. A process of balanced and diversified growth also helps to solve the problem of markets. A series of investments over a wide field will tend to create the markets for each others products. The restrictive effects of a paucity of markets will in this way be removed.

The discussion above has outlined some of the principal relationships which determine a process of growth. The process of growth, however, is not always smooth or continuous. It tends, often, to be concentrated into phases of intense activity. Ceylon has, in the past, experienced phases of this nature, but these have invariably been succeeded by periods of relative stagnation. Since the end of the war there have been signs of the beginnings of a new impetus to development. In the Government sector at least there has been a steady expansion in development expenditure. The time has now arrived for an acceleration of the pace of growth, for a renewed phase of intense activity that will carry the economy to new levels of production and employment. The total development effort of the country must, however, be borne by both the people and the Government. The Ceylon economy is a mixed economy in which the public and the private sectors co-exist. Advances in the Government sector alone will not, in these conditions, suffice to solve the problems of development. There must be a complementary process of expansion in the private sector as well. The investment programme of the Government will in itself improve the environment for such an expansion. But the emergence of the latter is also dependent on the energies and the abilities of private individuals and their success in improving the efficiency and capacity of production.

CHAPTER 2

REQUIREMENTS OF A PUBLIC SECTOR PROGRAMME

THE preceding chapter outlined the role of investment or capital formation in the process of development. The Six-Year Programme presented in this volume is, essentially, a programme of investment. It covers all but the very minor capital outlays of the Central Government over the six-year period. The investment expenditures of the Government, however, do not add up to the total of investment in the economy. The latter would include the capital expenditures of the private sector as well as of the local authorities.

On account of its partial coverage, the Six-Year Programme does not constitute an overall plan for the economy as a whole. The capital expenditures of the Government cover a wide number of spheres and, in one way or another, impinge on virtually all sectors of the economy. But these expenditures do not in themselves represent the total of investment activity in the country. An overall plan must be based on this latter total. But it has not been possible, for reasons of time and organization to undertake such a task. Indeed, a process on these lines would require the preparation of programmes of investment or expansion for each of the numerous branches of the private sector. Neither the data available nor the machinery of planning were adequate for a task of this magnitude.

The preparation of a comprehensive investment programme for the public sector is nevertheless a basic step in the process of planning. It makes possible a subsequent extension of the latter through the addition of supplementary programmes for the rest of the economy. A public sector programme is, moreover, of crucial importance to the economy as a whole. In countries like Ceylon, the Government has a central role to play in a process of development. The number of spheres whose expansion is the exclusive responsibility of the Government is particularly large, and the influence of Government activity on spheres outside this category is also heavy. The Government has in recent years shouldered a substantial share of the development activity of the country. The national income estimates for 1954 show a level of capital formation in the Government sector in excess of the level in the private sector. The importance of Government investment to the economy as a whole is likely to continue for some years to come.

It would, perhaps, be useful to outline in more detail the place of the Six-Year Programme in the general pattern of development. There is, however, a point that should be clarified at the outset. The expenditures shown in the Six-Year Programme cover only the capital outlays of the Government. They do not, in any sense, exhaust the Government's total effort in the sphere of development. The latter must take into account the whole complex of laws and institutions, and of policies and services, which influence the economic life of the country. In the plans and programmes of certain countries the development expenditures of the Government are not confined to capital expenditures. The current expenditures of ministries and departments engaged in the provision of basic services are also included. Such a procedure has not been adopted in the case of Ceylon. The expenditures shown in the programme are strictly restricted to the Government's capital expenditures and have not been expanded by the inclusion of current expenditures associated with development. The programme covers, in other words, expenditures on durable assets needed in some instances to replace, but in most cases to augment, the nation's capital stock.

The pattern of investment outlays contemplated by the Government must, of course, be related in some way to the development needs of the country. This implies a broad distribution of expenditures in conformity with a system of priorities. It is important, however, to recognise that a programme of investment for the Government must be fashioned on the basis of a pattern of priorities appropriate to the public sector. It does not necessarily follow that the latter must coincide with a system of priorities suitable for the economy as a whole. Industrial output, for example, may figure prominently in the development needs of the general economy. The whole of the investment outlays required for this process may not, however, find a place in a public sector programme. In a mixed economy, a substantial sphere of activity remains in the hands of the private sector. The Government programme may seek, in a number of ways, to stimulate or activise the private sector at specific points. But it would not, naturally, include the investment outlays needed to directly expand output in all spheres of the economy.

The Maintenance of Productivity

SUBJECT to the limiting condition mentioned above the Six-Year Programme has been based on the general requirements of a process of expansion in the economy. There were broadly five groups of requirements that had to be satisfied. It was necessary, first, to safeguard the existing productivity of the major sectors of the economy since a deteriora-

tion in these spheres could offset or negative advances in other directions. This has involved the inclusion of programmes for the rehabilitation or improvement of the major export crops. The total investment that would be required for this process is not, of course, shown in the Government programme. The latter provides only for government outlays which act as supplements to private investment.

The Expansion of Output

THE second broad requirement that had to be provided for is closely related in nature to the first. It is the urgent need to increase the total of output in the economy through the expansion of existing spheres and the creation of new ones. The Six-Year Programme has, therefore, included programmes and projects for expanding the acreage and improving the yield of rice production, for expanding the output of subsidiary foodstuffs, for improving the output of the fishing industry, for extending the cultivation of tobacco, for expanding animal husbandry, for improving the earnings of tourism, for the expansion of manufacturing industry, and for a host of other allied activities of a similar nature. Here again, the amounts of investment provided for by Government are only partial measures of the totals of activity in these fields. In many instances they are in the nature of supplements to private investment. This is particularly apparent in the field of manufacturing industry. The total of outlays provided in the Six-Year Programme for this sphere is relatively small in comparison to certain other spheres. This does not, however, diminish the high priority given to industrial development. The relatively moderate outlays in the Programme are a reflection of the Government's policy of generally desisting from the construction and operation of purely state-owned factories. The objective is, in fact, to promote industrial development through the private sector. The Government's programme is, therefore, confined to such requirements as are ancillary to this objective. These include the creation of long term credit facilities, research laboratories, training schemes, provision for participation in capital, and similar over-head requirements.

Basic Overheads

THE third of the requirements for which a public sector programme has to make special provision covers the utility services and basic overheads of the economy as a whole. This is a sphere which is to a large degree the exclusive responsibility of the State. Its importance to a process of development can seldom be exaggerated. Development is popularly associated with

an expansion in the productive capacity of the economy. The extent to which the absence of an adequate system of basic overheads inhibits such an expansion is sometimes overlooked. One of the commonest factors which limits the investment of private capital in under-developed countries is the absence of a proper network of such essential services as roads, harbours, telecommunications, railways, power and technical skills. These services constitute what has sometimes been called the "external economies" to production in a variety of other spheres. Their absence reduces the efficiency of production and raises costs. An investment programme for the public sector must naturally make sufficient provision for the maintenance and expansion of these services. Since they are the special responsibility of the State, their place in the programme as a whole is likely to be of special importance. The Six-Year Programme has provided for a substantial volume of investment in this field. Projects included in the programme provide for the development of the country's ports, for an extension in the network of roads, for improvements to the railway and the airport, for an expansion in postal and telecommunication facilities, for the training of skills, and for an augmenting of power supplies. These services are related in one way or another to the development effort in almost all spheres of the economy.

The Social Services

THE fourth of the broad groups of needs which have to be provided for in a public sector programme relates to the social services. The contribution of investment in the social services towards the expansion of the productive capacity of the economy is, perhaps, not direct. But by improving the quality and living standards of the population, the social services play a significant role in the process of development. The social services are, in a sense, akin to the utility services mentioned above, for they too constitute what has been described as the basic overheads of the economy. Low standards of health, literacy, housing and education are factors which retard progressive growth. Labour, like land and capital, is a factor of production, and "investment in men" which improves the quality of labour may prove of crucial importance to the development of the economy. The Six-Year Programme has made provision for investment outlays in the sphere of social services. Programmes are included for water supplies, housing, hospitals, schools, training institutions and subsidiary social services. The expenditure requirements in these fields are partly determined by the needs of a growing population. They seek to improve the general environment for economic and social progress.

Administration and Defence

THE last of the broad categories of requirements that determine the composition of a public sector programme relate to the spheres of administration and defence. The provision of services in these fields are part of the primary or basic functions of Government. They are central to a process of development in the sense that the latter cannot take place in the absence of law and order and a sound system of administration. A public sector programme must, therefore, make adequate provision for the requirements under this head. Expenditures of this nature do not, of course, make a direct contribution towards an expansion in output. The amount of funds to be provided for them must, therefore, be decided on it in the light of other competing claims. The Six-Year Programme has made provision for capital expenditures in the sphere of administration and defence. It includes programmes covering such fields as law and justice, police and prisons, administrative offices and quarters, and the armed services. The allocations of expenditure under these heads had, naturally, to be restrained. They had to take their place in a pattern of priorities somewhat heavily weighted towards the needs of development.

The significance of the Six-Year Programme to the wider process of development has been set out above. The pattern of priorities implicit in the programme are those which are appropriate to the public sector. The Six-Year Programme is concerned with a wide field of capital outlays which extends beyond the limits of an immediate increase in production. It has sought to provide for as many as possible of the most urgent needs. The basic approach in the preparation of the programme has been the useful application of the limited resources that are likely to be available over a six-year period. It is only such an approach which affords a basis for realistic planning. The limitation in resources does imply, however, that it would not be possible, within a given period, to satisfy the full complex of a country's needs. Programmes prepared exclusively on the basis of needs without reference to resources are likely, in the last analysis, to prove illusory. Countries which are in the fortunate position of being able to satisfy all their needs are not, by definition, poor.

CHAPTER 3

THE PREPARATION OF THE PROGRAMME: PROCEDURES AND LIMITATIONS

General

CHAPTER 2 outlined the general considerations which determine the pattern of priorities in a public sector programme. The present chapter sets out the broad basis on which the Six-Year Programme itself was prepared.

It is important to emphasise that the procedures adopted in the preparation of the programme have essentially been conditioned by the type of machinery available for planning. The Planning Secretariat was not intended to be the complete equivalent of the elaborate planning commissions set up in certain other countries.

The Secretariat did not originate or initiate individual projects or programmes. It had to utilise the existing Ministry and departmental machinery for this purpose. The general role of the Secretariat was to initiate a process of planning in the individual Ministries. It had to determine the manner of presentation of programmes, to establish a general system of financial allocations, to secure the type of data pertinent to an overall public sector programme, to ensure the consistency of this data with the annual budgetary provisions, and generally to integrate and aggregate individual projects and programmes into a single whole.

Many of the tasks mentioned above were themselves new. They represent in a number of cases a preliminary attempt to perform the sort of operation inherent in a process of planning. The estimates and assessments resulting from these tasks are, for this reason, tentative. They provide the initial foundation for a continuous process of revision and improvement. Such a process would necessarily follow the progressive adaptation of the machinery of Government to the needs of planning.

Duration of the Programme

THE preliminary step in the preparation of the Programme was to determine its broad magnitude over a given period of time. The period of time chosen was six years, commencing with the current financial year 1954-55.

A six-year duration corresponds to the period hitherto used for programming in Ceylon. It also corresponds to the interval envisaged in regional programmes under the Colombo Plan and in the draft programme recommended by the World Bank Mission. The current financial year 1954-55 was chosen for statistical purposes as the initial year of the programme. The choice of the date of commencement is not however, of significance to the actual content of capital expenditures from year to year. The latter would remain unaltered whether the Programme is viewed as a Six-Year Programme commencing in 1954-55 or a five-year programme commencing in 1955-56.

Assessment of Magnitude

GIVEN the duration of the programme, the next task was to determine its broad magnitude. Here it was necessary to face up to serious limitation which confronts a process of planning in Ceylon. This limitation is the absence of a reasonable degree of certainty concerning the future level of resources. Ceylon is an open economy where exports or imports occupy a dominant place in the total of national income. The prices of these exports and imports are determined by external conditions and are subject to wide and unpredictable fluctuations. These fluctuations affect the levels of income, of savings, and of Government revenues. Accurate estimates of the future level of resources are particularly difficult, if not impossible, in this background. This poses a serious problem in determining the possible magnitude of a long term programme.

It would have been possible to make a series of hypothetical forecasts or projections for each of the major components of the future volume of resources. This would provide a basis for determining the magnitude of the investment programme. Such an approach, however, is patently artificial as it assumes away the real problem of unpredictable fluctuations in the volume of resources. In the preparation of the programme itself, a more flexible approach was adopted. The basic programme was prepared on a working magnitude suggested by the recent levels of the Government's capital expenditures. An average annual expenditure within the period of the Programme of Rs. 410 to Rs. 430 million was broadly indicated on this approach. This implies a total programme in the neighbourhood of Rs. 2,500 million over a six-year period. This latter figure, therefore, provided a basic magnitude for procedural purposes. The possibility of fluctuations in the volume of future resources had then to be provided for. This involved the mapping out of supplementary courses of action to be pursued if future resources enable, on the one hand, a larger volume of outlays, or require, on the other, a reduction in these outlays.

The first of these eventualities has been provided for by the preparation of a supplementary list of projects which could be undertaken if future resources permit of an expansion of the programme. This list consists, at present, mostly of projects which could not be included within the allocations of the basic programme. It would possibly be added to from time to time as further projects are formulated or designed. The second of the eventualities mentioned above raises a more serious difficulty. The scope for reducing the capital outlays depicted in the basic programme would, in practice, be limited. There are broadly three ways in which a programme could be scaled down: first, by postponing the date of commencement of new projects, second, by retarding the rate of execution of projects already under way, and third, by abandoning projects in a state of partial completion. The last of these would prove wasteful of monies already expended whilst the second may not be permitted by technical factors. The flexibility of a programme from the point of view of a reduction in scale is, therefore, confined in practice to the postponement of new projects scheduled to be started in a given year. Reductions in outlays below this limit may involve the disruption of continuing works.

Priorities and Allocations

ONCE the working magnitude of the total programme was established, the next task was to determine the manner of its distribution between the various spheres of investment. This involved a broad allocation of funds in accordance with a general system of priorities. There is, of course, no 'a priori' system that can be applied in a mechanical fashion to actual programmes. As outlined in the preceding chapter, there are certain types of requirement that have to be satisfied in a public sector programme. The actual shares of such a programme allotted to each requirement would depend on circumstances particular to individual countries and on the nature of the projects claiming inclusion.

The World Bank Mission had in its report examined both the development needs of the country and the actual policies and programmes in operation in the public sector. It had itself suggested the outlines of a six-year programme of investment. The broad allocation of funds between the various spheres of investment indicated there afforded a convenient starting point for the preparation of the present programme. The actual projects envisaged by the Mission were not always of relevance to the latter programme as many of them were already completed or in the process of implementation. But the suggested pattern of priorities and distribution of funds did provide a useful basis for the preliminary exercises involved in the formulation of a programme.

The programme outlined by the World Bank Mission envisaged a total expenditure of Rs. 1,600 million. This is smaller than the magnitude of the present programme. The reasons for this difference are, in part, that the coverage or scope of the World Bank Mission programme was somewhat narrower than that of the present programme, and in part, that the present levels of resources and spending are considerably in excess of those prevailing at the time of the Mission's Report. The initial draft of the present programme was, however, prepared on the basis of the Rs. 1,600 million total assumed by the Mission. Such a procedure was introduced in order to single out projects of the higest priority which would qualify for inclusion within the broad allocations suggested by the Mission. Projects excluded by this process were then considered individually and the most important of them selected for incorporation into the final draft of the programme embracing the full outlay of approximately Rs. 2,500 million. The World Bank allocations were, therefore, only used as a preliminary step. The final draft which constitutes the present programme has modified these allocations to take account of projects of special urgency or importance in individual spheres.

Appraisal of Commitments

THERE were two stages that followed the initial distribution, or allocation, of the total programme. The first was the estimation of the total volume of outlays required for the completion of projects already in the process of construction. These outlays were in the nature of 'commitments' in the sense that they have to be provided for if continuing projects were not to be abandoned in a semi-finished state. The importance of the magnitude of these commitments is sometimes overlooked. At any given time the Government has under construction a number of projects whose residual costs over the period of a new programme are often sizeable. This implies that there is never a clean sheet on which to commence a process of planning. Within a given total of investment, the amount of funds available for new projects varies inversely with the scale of committed expenditure. Where the latter is large the range of choice of new projects is necessarily restricted. In the first draft of the programme on the reduced magnitude of Rs. 1,600 million, the share of commitments was as high as two-thirds of the total. It was only with the expansion of the overall magnitude of the programme that it was possible to make a sizeable provision for new projects.

Formulation and Selection of new Projects

THE second of the stages mentioned above followed the estimation of commitments. This was the formulation of new projects and proposals for

each of the spheres of investment and the selection of the more important or urgent of them for inclusion in the overall programme. The formulation of projects and proposals was, of course, the task of the Ministries and Departments in consultation with their technical officers. For purposes of liaison with the Planning Secretariat advisory committees on the long term programme were set up in each of the Ministries, and a liaison officer appointed. These committees were intended to serve as broad co-ordinating agencies for Ministry programming. The new projects and proposals formulated by Ministries were next listed in a general order of priority. These priorities afforded the basis for the selection of projects for inclusion, first, in the preliminary draft of the Programme, and latterly, in its expanded version.

The Phasing of the Programme

HAVING obtained the magnitude of the total programme and its distribution between the various spheres of investment, the next task was to phase out the programme as a whole over the six-year period. The process of phasing out a programme in terms of annual outlays is naturally of crucial importance. It is necessary to avoid marked fluctuations in the level of planned expenditure from year to year. It is also necessary to link these expenditures to the annual availability of financial resources and to the constructional capacities of the administration.

The initial step in the process of phasing was to determine the annual expenditure requirements of the committed projects. Once these are known it would be possible to assess, on the basis of given annual totals, the margin of funds available for new projects from year to year. The expenditure requirements of committed projects are normally likely to follow a distinctive pattern. The major part of these requirements tend to be concentrated within the early period of a programme. This is only to be expected since at any given time there are likely to be under construction a substantial number of continuing projects whose duration is of varying lengths. The projected total of outlays needed for these schemes over the years to come naturally tend to taper off in successive years. Towards the later stages of a programme an increasing number of these initial projects reach completion. The total level of aggregate commitments, therefore, declines progressively. An attempt at phasing out the annual requirements for continuing projects was made for the purposes of the present programme. The resulting estimates are shown elsewhere. These estimates would, however, need to be revised annually. If, for example, the estimated expenditure on continuing works are not, for one reason or another, realized in any year of the programme, the balance would have to be carried forward to the succeeding years. This would involve a revision of the whole series of estimates for the later period.

The phasing of the initial commitments had to be succeeded by the phasing of new projects. The timing of new projects should normally coincide with the falling off of commitments so as to maintain the stability of the programme as a whole. This does not of course imply that an increasing number of new projects could be introduced in each of the years of the programme. Projects once introduced themselves become commitments. The total level of commitments at any given time is, therefore, likely to be always large. But given these commitments a certain number of new projects can be introduced each year to absorb the difference between the outlays required for the former and the total of resources available.

The effort to phase out new projects to fit into a stable or gently rising level of total expenditure revealed a shortcoming in the administrative processes of programming. There was a general tendency to crowd in the larger part of the total allocations of individual spheres into the earlier years of the programme. Annual expenditures in the later years tended to fall. Thus in the first draft of the programme, the next financial year 1955-56 showed a peak level of projected spending in excess of both the availability of finance and the constructional capacities of departments. These figures had inevitably to be scaled down in the preparation of the actual budget for that year. The second draft of the programme presented here is based on authorised budget figures but the projected crest in annual expenditure has now moved forward to the financial year 1956/57. Expenditure after that period tends to decline. This position is clearly unrealistic and would possibly involve a revision of the 1956/57 aggregates when the budget for that year is prepared. In the final result it is probable that annual expenditures actually incurred over the period of the programme will, subject to the availability of funds, increase progressively and reach their peak towards the later years. This would be consistent with a gradual improvement in constructional capacities. Such an expansion in expenditure is not, unfortunately, reflected in the projected phasing of the programme as presented in this volume.

Ancillary Stages in Programming

THE estimation of the total magnitude of the programme, the determination of priorities for the allocation of this total amongst the various spheres of investment, the assessment of commitments, the formulation and selection of new projects, and the phasing of the combined aggregate of outlays, constituted the basic stages in the formulation of the Six-Year Programme. There are, however, a number of ancillary stages to an exhaustive process of programming, involving elaborate statistical data and techniques. Many of these stages are complex. They include a thorough

economic appraisal of individual projects, additional to the appraisals of Ministries and Departments; the formulation of an overall budget of physical resources, covering both labour and materials; the testing of the programme as a whole for consistency; and other allied processes. These tasks can only be performed over a period. In many instances they are themselves of a continuing nature. The basic requirement for all exercises of this kind is the availability of statistical data in an appropriate form. The collection of this data is, therefore, the first and most important step in the process.

In the preparation of the present programme an extensive effort was made to estimate and assemble the data relevant to the processes outlined above. Detailed estimates and information were obtained for virtually every individual project in the Programme on a wide variety of aspects. These included in each case, the location of the project, the executing authority, the relative extent of local and foreign costs, the components of the physical assets involved such as land, buildings and equipment, the amount and types of employment to be generated in both the construction of the project and its operation, the recurrent expenditure that is likely to arise out of the operation of the project, and the output or benefits that are expected to accrue. In certain cases the types of exercise involved were undertaken for the first time. The results that have emerged must, therefore, be looked upon as preliminary estimates. They represent an initial attempt to lay the foundations of a progressive improvement in programming techniques.

The data referred to above has made possible an analysis of a number as aspects of the Six-Year Programme. The programme as a whole could be divided in terms of the various constructional agencies involved, the type of physical asset to be created, the labour and skills required, and the geographical distribution of projects. This data is of relevance to a study of physical capacities and of bottienecks in the implementation of projects. The programme as a whole could also be classified according to expenditures to be generated locally and abroad. This is of relevance to an appraisal of balance of payments problems and of requirements in the field of external aid and borrowing. The impact of the programme on future recurrent budgets and on output in the economy as a whole could also be broadly assessed from the type of data assembled. Tentative tabulations of some of these varied factors in the Six-Year Programme are presented in the chapter to follow. As already mentioned, the figures are of a preliminary character and are subject to continued improvement and revision. They do afford, however, a valuable basis for performing the numerous tasks that must necessarily follow the preparation and presentation of an initial programme.

CHAPTER 4

AN OUTLINE OF THE PROGRAMME

Total Cost

THE outlays included in the Programme cover the projected capital expenditures of the Government over the six-year period. The projects on which these expenditures are incurred cost, in total, Rs. 4,177 million. These projects fall into two main groups; (*a*) continuing projects commenced before 1954/55 and (*b*) new projects commenced or to be commenced between 1954/55 and 1959/60. In each of these groups there are a few projects which will continue beyond the six-year period.

Of the total cost of Rs. 4,177 million, Rs. 760 million has already been spent on projects in the first group during the period before 1954/55. Rs. 888 million of the residual total would be carried over for expenditure after the six-year period on projects that would still be in a process of construction. The expenditure requirement between the years 1954/55 and 1959/60 is, therefore, Rs. 2,529 million. This latter figure represents the magnitude of the Six-Year Programme.

Committed and New Projects

THE expenditures required for the completion of continuing projects constitute the committed outlays of the Programme. These outlays have a prior claim on the total of resources available for investment as projects could scarcely be abandoned in a state of partial completion. Capital outlays of a recurrent nature arising out of policies already in force are also included in the category of commitments. These items, being recurrent, do not have a finite total cost or a specific period of implementation. They have been included in the category of commitments because they are not being introduced for the first time in the six-year period. Rs. 1,268 million or 50.1 per cent. of the total expenditure of Rs. 2,529 million represents expenditures on commitments. The corresponding expenditure on new projects introduced for the first time during the six-year period is Rs. 1,261 million or 49.9 per cent. of the total. If the amounts carried over after 1959-60 are also taken into account the total estimated cost of all new projects constitutes 59.4 per cent. of the total estimated expenditures after October 1, 1954.

The Pattern of Priorities

THE projects comprising the Six-Year Programme, whether new or committed, are distributed over a variety of fields. The distribution of the

total outlay of Rs. 2,529 million over the various spheres of investment reflects the general pattern of priorities in the Programme. The nature and significance of these priorities were discussed in earlier chapters.

The table below presents the distribution of expenditure in the six-year period over the principal spheres of investment.

SIX-YEAR PROGRAMME

Distribution of Estimated Expenditures

	Estimated Expenditure in Six-Year Period (Rs. '000)		
TOTAL	2,528,786	As a percentage of Total	
DEFENCE	94,623	3·74	
ADMINISTRATION	89,477	3·54	As a percentage of Administration
Civil Administration	41,228	1·63	46·08
Police and Prisons	38,120	1·51	42·60
Law and Justice	10,129	·40	11·32
SOCIAL SERVICES	402,738	15·93	As a percentage of Social Services
Health	118,369	4·68	29·39
Education	146,101	5·78	36·28
General Housing	105,131	4·16	26·10
Unclassified	33,137	1·31	8·23
ECONOMIC PROJECTS	1,941,948	76·79	As a percentage of Economic Projects
Public Utilities	837,621	33·12	43·13
Agriculture, Irrigation and Fisheries	922,602	36·48	47·51
Industry	111,799	4·42	5·76
Rural Development and Village Works	57,550	2·28	2·96
Tourism	12,376	·49	·64

It will be seen from the figures above that nearly 77 per cent. of the total programme is devoted to projects of an economic nature which expand in one way or another the productive base of the economy. About 16 per cent. of the total accrues to the social services like health, education and housing, which improve the quality and living standards of the people and contribute indirectly to economic growth. The combined share of economic projects and social services in the programme amounts to as much as 93 per cent. of the total. Civil administration and defence each receive about 3.5 per cent. of the total investment. The share of these latter sectors in the programme is of a moderate order.

The general pattern of priorities as revealed in this table conforms to the broad requirements of an economy in a process of expansion. The outlays on administration and defence are of modest proportions. The outlays on the social services are substantial but not excessive in relation to other productive needs. The outlays on economic projects of various kinds are of considerable dimensions. They dominate the total. Within the latter category provision is made for a considerable expansion of the basic utility services and of agriculture, irrigation and fisheries. Direct Governmental outlays in the sphere of industry are relatively restricted. This does not of course, measure the true emphasis given to industrial development. It only reflects the policy of encouraging industrial activity in the private sector.

An alternative classification, by Ministries, of the distribution of the total expenditure in the six-year programme is shown below.

SIX-YEAR PROGRAMME
Distribution by Ministries

(Figures in Rs. '000)

Ministry	*Total Estimated Cost of Projects*	*Expenditure up to September 30, 1954*	*Estimated Expenditure in Six-Year Period*				*Estimated Expenditure after October 1, 1960*
			On Committed Projects	*On New Projects*	*Total*	*Percentage of Tota*	
Defence and External Affairs	237,915..	32,038..	62,826..	63,739..	126,565..	5·00 ..	79,312
Finance ..	21,625..	6,090..	2,798..	9,437..	12,235..	·48 ..	3,300
Justice	10,129..	— ..	1,548..	8,581..	10,129..	·40 ..	—
Home Affairs ..	80,597..	445..	311..	79,504..	79,815..	3·16 ..	337
Lands and Land Development . ..	1,691,904..	279,885..	500,295..	243,419..	743,714..	29·41 ..	668,305
Agriculture and Food ..	188,750..	3,211..	34,299..	151,240..	185,539..	7·34 ..	—
Health	149,667..	30,831..	47,751..	70,545..	118,296..	4·68 ..	540
Local Government ..	193,762..	16,895..	99,867..	59,500..	159,367..	6·30 ..	17,500
Education ..	252,708..	93,136..	66,170..	78,998..	145,168..	5·74 ..	14,404
Labour	25,969..	— ..	24,000..	1,969..	25,969..	1·03 ..	—
Commerce, Trade and Fisheries ..	31,506..	1,071..	4,858..	25,577..	30,435..	1·20 ..	—
Industries, Housing and Social Services ..	243,466..	67,900..	43,673..	129,750..	173,423..	6·86 ..	2,143
Posts and Broadcasting ..	99,745..	26,382..	6,857..	66,506..	73,363..	2·90 ..	—
Transport and Works ..	949,647..	202,814..	372,789..	271,979..	644,768..	25·50 ..	102,065
Total ..	4,177,390	768,698	1,268,042	1,260,744	2,528,786	100·00	873,806

The Content of the Programme

THE general distribution of the investment outlays in the programme has been illustrated in the preceding tables. The Programme itself is made up of many hundreds of individual projects or items. Each of these is listed under the Ministries responsible for them in the Schedules in Part II. An analysis of these projects is not within the scope of this chapter. A detailed discussion of the various aspects of the Six-Year Programme is to be found in the sector chapters in Part III of this volume.

A brief recitation of the major schemes within the Programme is provided below, although no assessment is made here of their impact on development or the national income. The general objective of the Programme is, however, to increase the total of output in the economy within the six-year period by increasing the productivity of the export sector, by extending the acreage of land under cultivation, by raising yields on areas already cultivated, by promoting the development of an industrial sector and by improving the earning capacity of a variety of other fields like fisheries and tourism. The Programme also makes provision for the creation and expansion of the 'basic overheads' which play a vital role in the productive capacity of the economy. The tempo of expansion in the social services is to be sustained in order to preserve and extend the advances made in recent years. Apart from health and education there is also an added emphasis on water supplies and housing in the Six-Year Programme. The general requirements of the administration have also been provided for. The summary below lists the major types of investment appearing in the Six-Year Programme. It does not, however, seek to explain the role of specific investments in the general pattern of development.

ECONOMIC PROJECTS

Investments on projects of an economic character embrace agriculture and irrigation, fisheries, the basic utility services, industry and tourism. Details of the allocations under this head are shown in Table 5.

AGRICULTURE AND IRRIGATION

There are three strands to the agricultural programme during the six-year period. The first of these comprise measures to maintain and improve the productivity of the agricultural export sector. Rs. 105 million of the total programme will be devoted towards the rehabilitation of the rubber industry, Rs. 15 million towards the rehabilitation of the coconut industry and Rs. 4 million for assistance to small holders of tea. These measures aim not merely at arresting a potential decline in output but at

expanding the capacity, output and earnings of the export sector. Allied to these projects is a programme for the alienation of undeveloped Crown land to colonists for the cultivation of commercial and export crops like tea, rubber and coconuts. This project is to cost Rs. 43 million.

The second basic strand to the agricultural programme comprises measures to extend the acreage of land under cultivation, particularly under such non-export food crops as rice. These measures involve the provision of irrigation facilities and the colonization of new lands. A number of the major irrigation schemes now under construction would be completed during the six-year period. Others like Gal Oya would be carried towards their final stages. In addition, a whole series of minor irrigation works will be undertaken in various parts of the Island. Five new irrigation projects of major proportions will be commenced during the six-year period. They are the Minipe Extension Scheme, the Walawe Ganga Scheme, the Heda Oya Scheme, the Kirindi Oya Scheme, and the Malwathu Oya Scheme. The construction of these schemes will continue beyond 1959-60. They may have, in part, to be undertaken by outside contractors. The total capital expenditure of the Ministry of Lands and Land Development during the six-year period is Rs. 744 million. It is expected to provide with irrigation, over 120,000 acres of land at present not irrigated and to settle over 140,000 families either on irrigation schemes, or village expansion schemes or on Crown land to be cultivated with commercial crops. A comprehensive aerial survey of Ceylon is also to be commenced in 1955-56 at a cost of Rs. 2.5 million. This project is being financed by Canada under the Colombo Plan.

The third strand in the programme for agriculture is the increasing of the productivity of acreages now under cultivation with non-export crops. The improvement of peasant agriculture is to be attained by the raising of yields, by the diversification of products, by the provision of better marketing facilities and by the provision of services of general benefit. The raising of yields is to be achieved through the evolution and use of high yielding strains, by the extended use of fertilisers, by the introduction of modern cultural practices and by the provision of additional irrigation facilities. The diversification of peasant agriculture is to be promoted through the introduction and expansion of such activities as cotton, and tobacco cultivation, horticulture, pasture, and fodder culture, and animal husbandry. Marketing facilities would be improved through the development of the co-operative movement, the application of guaranteed price schemes, the development of canning and processing, the extension of existing marketing schemes for special products, and also through an expansion in the activities of the Milk Board. The provision of services of general benefit during the period of the programme includes soil conservation

assistance, training in agricultural education and agricultural engineering, and the establishment of a Food Research Institute. The total outlay on measures to improve the productivity of non-export agriculture is Rs. 32 million during the six-year period. A programme for the improvement of Forestry in Ceylon is also included.

FISHERIES

Rs. 17 million is provided for the expansion of fisheries. The long-term objective in this sphere is not merely to make Ceylon self-sufficient in fish products at present standards of consumption but to raise standards of consumption as well. The fisheries programme covers the mechanisation of craft and the provision of other equipment, experiments with trawler fishing, the development of inland fisheries, the construction of the fisheries harbour, the refrigeration plant and the by-products factory, the construction of fisheries roads, and the provision of housing for fishermen.

THE BASIC UTILITIES

Investments in this sphere serve to expand what may be described as the basic overheads of the economy. They include ports and harbours, roads and railways, power supplies, civil aviation, telecommunications, meteorology, broadcasting, and so on. The programme in this field is briefly outlined below. The total outlay envisaged is Rs. 765 million.

The Colombo Port Development Scheme will be completed and brought into operation during the early years of the Programme. The latter provides for the residual funds required for the completion of the scheme and for the purchase of mechanical equipment. The ports of Galle, Kankesanturai and Trincomalee will, in addition, be developed and improved during the period of the Programme. The road net-work of Ceylon will be expanded by the improvement of existing roads and the construction of new roads in areas where development is possible or taking place. Allied to road construction is building activity concerning bridges and causeways and the construction of by passes. The New Kelani Bridge is expected to be completed in 1956-57. The Railway programme emphasises the development of both the suburban and long distance services, the renewal of stock, houses for staff and improvements in administration and organisation. In the field of power supplies, the Hydro-Electric Scheme Stage IIA will be completed around 1957-58, whilst Stage IIB will be commenced during the period of the Programme at a total cost of Rs. 139 million. A new power station will also be built in Jaffna. In civil aviation, the Ratmalana Airport will be expanded and brought up to International Standards during the six-year period.

The telecommunication services of the country will be considerably expanded during the period of the programme at a total cost of Rs. 73 million. The Colombo Telephone Exchange and the associated net work will be extended through the construction of a Rs. 5 million building for the Central Telegraph Office, the replacement and expansion of the existing exchange, and the provision of telephones to subscribers. The outstation telephone exchanges and equipment will similarly be expanded. Additional Postal accommodation will also be provided in various parts of the Island. Provision has been made for the replacement of transmitters for broadcasting and for meteorological equipment during the six-year period.

INDUSTRIES

The development of industries in Ceylon will receive special emphasis in the six-year period. However, the policy of the Government in this field is to encourage activity in the private sector. The existing governmental enterprises will be reorganised or completed and converted into public corporations with the participation of private capital. Provision for the reorganisation or completion of Government factories has been made in the Programme. These factories include the Vegetable Oil Factory, the Cement Factory, and the Plywood, Leather, Ceramics, Paper and D.D.T-Caustic Soda factories. Special attention will be given to salt production during the six-year period. Provision has also been made for Government participation where necessary in large scale industry jointly with private capital, both local and foreign. Negotiations with prospective investors have already been entered into in a number of such fields as oil refining, sugar manufacture, the production of tyres and the exploitation of mineral sands. The Government will give special emphasis to the development of small-scale industries. These industries may be specially suitable in conditions where capital is scarce and labour is plentiful. The Programme provides for Governmental assistance for small-scale industries through the provision of financial and technical assistance and research. There are several other aspects to the Government's policy for industrial development. The Ceylon Institute of Scientific and Industrial Research has been set up; a Development Finance Corporation for long and medium term finance for industry is to be established shortly; and a Standards Institute is to be created. The needs of industrial expansion will be further recognised through the Government's fiscal policies.

The Programme also makes substantial provision for the expansion of cottage industries. The development of both small-scale and cottage industries is a particularly useful method of providing additional employment.

The Six-Year Programme includes schemes for the development of the handloom industry, for financial aid to minor cottage industries, for loans to co-operative industrial societies and unions, for the development of power loom production, for the establishment of coir workshops, for the creation of a Cottage Industries Institute and for the training of apprentices.

RURAL DEVELOPMENT

The extended role of the rural development movement in the Six-Year Programme should also be emphasised. Rural Development or community benefit activities play a vital part in the development of the rural areas. They provide a means of harnessing the vast unused labour potential of the country for purposes of development. The introduction of the principle of self-help would make possible the construction of a considerable range of capital works with voluntary labour and with only partial assistance from Government. The pace of capital formation in the economy would in this way be stepped up. The Six-Year Programme has made provision of Rs. 17 million for Government assistance to Rural Development activities.

TOURISM

The recognition of the potential importance of a tourist industry in Ceylon is reflected in the Six-Year Programme. Funds are provided for publicity and advertising abroad and for the improvement of local amenities and facilities.

THE COLOMBO NORTH RECLAMATION SCHEME

Mention should also be made of the scheme for the reclamation of land around Colombo. The total cost of the scheme is approximately Rs. 100 million. Provision has been made to commence the scheme during the six-year period.

THE SOCIAL SERVICES

The programme for the Social Services covers such fields as education, health, water supplies, housing and the specialised social services. The detailed allocations in this sphere are shown in Table 4.

EDUCATION

The magnitude of the education programme over the Six-Year Programme is Rs. 145 million. This includes the building programme for schools and colleges, to keep pace with the rise in school-going population, and for training colleges to supply the requirements of teachers. The Six-Year Programme places a special emphasis on technical education. Provision is made for extending the College of Engineering, for junior technical schools, for the construction of school workshops, for an Institute of Practical Technology and for the opening of Trade Schools. Provision is also made for the continuation of work on the University buildings, Peradeniya. The programme also makes provision for extensions to the Colombo Museum, for the conservation of ancient monuments, and for the repository for Government archives.

HEALTH

The Programme provides for an expenditure of Rs. 118 million on the health services over the six-year period. The programme for hospitals and the medical services is to cost Rs. 104 million. This includes the development and expansion of 8 provincial hospitals, 11 base hospitals, 55 peripheral units and extensions and improvements to the General Hospital and its ancillary institution. The emphasis in this sphere is on consolidation. The programmes for public health, for special campaigns such as T. B., and Leprosy, for research, and for Indigenous Medicine are to cost Rs. 12 million.

WATER SUPPLIES

High priority has been given in the Six-Year Programme to the provision of water supplies. The programme in this sphere is closely allied to the programme for health and sanitation. The total provision for water supplies over the six-year period is Rs. 73 million. Rs. 37 million of this amount is for the Kalatuwawa Scheme including both the Central Government contribution and the loan to the Colombo Municipality. The residue is for water supply schemes to Towns South of Colombo, to other towns, and to the rural areas. Provision has also been made for allied programmes in the sphere of drainage, sewerage and slum clearance.

HOUSING

The Six-Year Programme reflects the marked expansion in the housing activities of Government. A specialised Department of Housing has now been created and Rs. 90 million allocated to housing activities in the Programme. The Housing outlays embrace direct construction of flats and housing estates by Government and loans to individual house builders and building societies. These outlays exclude the provision of administrative quarters by Government in other spheres. The housing problem had become acute in the post-war period. The policy and programme of the Government will make a considerable impression on house building activity in the country.

SPECIALISED SOCIAL SERVICES

Provision has been made in the programme for such specialised social services as homes for the aged and the infirm, sheltered workshops for the deaf and blind, and a House of Detention and Home for Vagrants.

ADMINISTRATION AND DEFENCE

The role of capital expenditures on administration and defence in a public sector programme was outlined in a previous chapter. The Six-Year Programme makes provision for outlays in this sphere totalling Rs. 184 million. Tables 2 and 3 show the detailed allocations under this head. These include the construction of Kachcheries, Secretariats, offices and quarters. The capital outlays arising out of the administration of justice, the maintenance of foreign relations, the expansion and equipment of the police force, the prison and probation services, and the excise services have all been provided for. The building of the New Town of Anuradhapura is to be completed early in the six-year period. The outlays made here cover a variety of fields. The provision for the armed services is confined to the basic requirements of a defence force.

STATISTICAL SUMMARY

The distribution of the total expenditure envisaged in the Programme between the specific categories in each sphere of investment is shown in the annexed tables. Table 1 is a summary of the Programme over all spheres. Tables 2 to 5 provide the detailed breakdown of expenditure in each of the major spheres of investment.

TABLE 1

Distribution of Estimated Expenditures

(Rs. '000)

	Total Estimated Cost	Expenditure up to September 30, 1954	Estimated "Carry over" on October 1, 1954	Estimated Expenditure in Six-Year Programme			Estimated "Carry over" on October 1, 1960
TOTAL	4,177,390	760,698	3,416,692	2,528,786	As a percentage of Total		887,906
DEFENCE	146,140	17,983	128,157	94,623	3·74		33,534
ADMINISTRATION	161,762	22,870	138,892	89,477	3·54	As a percentage of Administration	49,415
Civil Administration	52,619	8,091	44,528	41,228	1·63	46·08	3,300
Police and Prisons	99,014	14,779	84,235	38,120	1·51	42·60	46,115
Law and Justice	10,129	—	10,129	10,129	·40	11·32	—
SOCIAL SERVICES	559,703	135,578	424,125	402,738	15·93	As a percentage of Social Services	21,387
Health	149,740	30,831	118,909	118,369	4·68	29·39	540
Education	254,463	93,958	160,505	146,101	5·78	36·28	14,404
General Housing	115,850	6,719	109,131	105,131	4·16	26·10	4,000
Unclassified	39,650	4,070	35,580	33,137	1·31	8·23	2,443
ECONOMIC PROJECTS	3,309,785	584,267	2,725,518	1,941,948	76·79	As a percentage of Economic Projects	783,570
Public Utilities	1,189,382	236,696	952,686	837,621	33·12	43·13	115,065
Agriculture, Irrigation and Fisheries	1,873,367	283,710	1,589,657	922,602	36·48	47·51	667,055
Industry	175,860	63,861	111,999	111,799	4·42	5·76	200
Rural Development and Village Works	58,800	—	58,800	57,550	2·28	2·96	1,250
Tourism	12,376	—	12,376	12,376	·49	·64	—

TABLE 2

Distribution of Estimated Expenditures—Defence

(Rs. '000)

	Total Estimated Cost	Expenditure up to September 30, 1954	Estimated "Carry-over" on October 1, 1954	Estimated Expenditure in Six-Year Period		Estimated "Carry-over" on October 1, 1960
TOTAL	146,140..	17,983..	128,157..	94,623..	As a percentage of Defence	33,534
Army	79,526..	10,197..	69,329..	49,638..	52·46 ..	19,691
Navy	33,305..	4,935..	28,370..	18,370..	19·41 ..	10,000
Air Force	32,975..	2,572..	30,403..	26,560..	28·07 ..	3,843
Unclassified	334..	279..	55..	55..	·06 ..	—

TABLE 3

Distribution of Estimated Expenditures—Administration

(Rs. '000)

	Total Estimated Cost	Expenditure up to September 30, 1954	Estimated "Carry over" on October 1, 1954	Estimated Expenditure in Six-Year Period		Estimated "Carry over" on October 1, 1960
TOTAL	161,762..	22,870..	138,892..	89,477..	..	49,415
CIVIL ADMINISTRATION ..	52,619..	8,091..	44,528..	41,228..	As a percentage of Civil Administration	3,300
Central	18,756..	5,223..	13,533..	11,233..	27·25 ..	2,300
Foreign	3,432..	— ..	3,432..	3,432..	8·32 ..	—
Provincial	34,431..	2,868..	27,563..	26,563..	64·43 ..	1,000
POLICE AND PRISONS	99,014..	14,779..	84,235..	38,120..	As a percentage of Police and Prisons	46,115
Police	87,112..	14,334..	72,778..	27,000..	70·83 ..	45,778
Prisons	11,902..	445..	11,457..	11,120..	29·17 ..	337
Unclassified	— ..	— ..	— ..	— ..	— ..	—
LAW AND JUSTICE	10,129..	— ..	10,129..	10,129	As a percentage of Law and Justice	—
Higher Courts	200..	— ..	200..	200..	1·97.. ..	—
Lower Courts	9,843..	— ..	9,843..	9,843..	97·18 ..	—
Other judicial machinery ..	86..	— ..	86..	86..	·85 ..	—
Unclassified	— ..	— ..	— ..	— ..	— ..	—

TABLE 4

Distribution of Estimated Expenditures—Social Services

(Rs. '000)

	Total Estimated Cost	Expenditure up to September 30, 1954	Estimated "Carry over" on October 1, 1954	Estimated Expenditure in Six-Year Period		Estimated "Carry over" on October 1, 1960
TOTAL	559,703	135,578	424,125	402,738		21,387
HEALTH	149,740	30,831	118,909	118,369	As a percentage of Health	540
Hospitals	102,483	23,179	79,304	78,764	66·54	540
Training Centres	500	—	500	500	·42	—
Dispensaries	4,226	3,592	634	634	·54	—
Specialist Institutes	13,397	1,463	11,934	11,934	10·08	—
Unclassified	29,134	2,597	26,537	26,537	22·42	—
EDUCATION	254,463	93,958	160,505	146,101	As a percentage of Education	14,404
The University	85,225	37,012	48,213	33,809	23·14	14,404
Schools and Colleges	90,239	39,234	51,005	51,005	34·91	—
Training Colleges	56,682	16,801	39,881	39,881	27·30	—
Polytechnics	9,553	882	8,671	8,671	5·93	—
Cultural Institutions	7,275	—	7,275	7,275	4·98	—
Unclassified	5,489	29	5,460	5,460	3·74	—
GENERAL HOUSING	115,850	6,719	109,131	105,131	As a percentage of General Housing	4,000
Grants to Local Authorities	9,850	—	9,850	9,850	9·37	—
Central Government Housing	96,000	2,219	93,781	92,781	88·25	1,000
Unclassified	10,000	4,500	5,500	2,500	2·38	3,000
UNCLASSIFIED	39,650	4,070	35,580	33,137	As a percentage of Unclassified	2,443
Labour Services	25,896	—	25,896	25,896	78·15	—
Social Services	13,754	4,070	9,684	7,241	21·85	2,443

TABLE 5

Distribution of Estimated Expenditures—Economic Projects

(Rs. '000)

	Total Estimated Cost	Expenditure up to September 30, 1954	Estimated "Carry over" on October 1, 1954	Estimated Expenditure in Six-Year Period		Estimated "Carry over" on October 1, 1960
TOTAL	3,309,785	584,267	2,725,518	1,941,948		783,570
PUBLIC UTILITIES	1,189,382	236,696	952,686	837,621	As a percentage of Public Utilities	115,065
Roads	172,928	24,238	148,690	91,636	10·94	57,054
Railway	194,981	50,180	144,801	144,040	17·20	761
Aviation	23,229	1,474	21,755	18,705	2·23	3,050
Power	384,693	59,921	324,772	291,572	34·81	33,200
Port	154,422	64,917	89,505	89,505	10·69	—
Posts and Telecommunications	98,896	26,563	72,333	72,333	8·63	—
Unclassified	160,233	9,403	150,830	129,830	15·50	21,000
AGRICULTURE, IRRIGATION AND FISHERIES	1,873,367	283,710	1,589,657	922,602	As a percentage of Agriculture, Irrigation and Fisheries	667,055
Rehabilitation of Export Crops	123,138	—	123,138	123,138	13·35	|
Colonization under Commercial Crops	50,587	—	50,587	43,191	4·68	7,396
Irrigation and Colonization (non-export crops)	1,493,185	277,059	1,216,126	636,467	68·99	579,659
Improvement of non-export Agriculture	34,427	2,498	31,929	31,929	3·46	—
Marketing and Co-operation	18,605	612	17,993	17,993	1·95	—
Forestry	5,089	—	5,089	5,089	·55	—
Reclamation Schemes	100,850	750	100,100	20,100	2·18	80,000
Fisheries	8,478	1,014	7,464	7,464	·81	—
Unclassified	39,008	1,777	37,231	37,231	4·03	—
INDUSTRY	175,860	63,861	111,999	111,799	As a percentage of Industry	200
Industrial Research and Training	8,400	—	8,400	8,400	7·51	—
Existing Government Enterprises	107,154	63,861	43,293	43,293	38·72	—
Government participation in large scale Industry	26,000	—	26,000	26,000	23·26	—
Assistance to small scale Industry	10,000	—	10,000	9,800	8·77	200
Cottage Industries	24,306	—	24,306	24,306	21·74	—
RURAL DEVELOPMENT AND VILLAGE WORKS	58,800	—	58,800	57,550	As a percentage of Rural Development	1,250
Village Works undertaken by R. D. SS.	16,800	—	16,800	16,800	29·19	—
Grants to Local Authorities for Village Works	24,000	—	24,000	24,000	41·70	—
Unclassified	18,000	—	18,000	16,750	29·11	1,250
TOURISM	12,376	—	12,376	12,376	As a percentage of Tourism	—
Resthouses	7,876	—	7,876	7,876	63·64	—
Publicity	4,500	—	4,500	4,500	35·36	—

The Phasing of Expenditure

THE expenditure depicted in the preceding section are to be incurred over the several years of the six-year period. The amounts provided each year would be reflected in the annual budgets. As emphasised in Chapter 3 it is important to avoid wide fluctuations in yearly expenditures. From this point of view the phasing of expenditures on new projects as shown in the schedules in Part 2 stand in need of revision.

It is reasonable to expect a progressive expansion in administrative and constructional capacities over the period of the programme. The expenditures actually incurred should reflect this expansion. The Six-Year Programme provides the framework within which the annual budgetary allocations would, in future, be made. These allocations should conform to the availability of finance and the improvement in constructional capacities. Each of these aspects are discussed in the chapters to follow.

Employment and the Programme

THE relationship between the creation of employment opportunities and a process of investment was outlined in Chapter 1 of this volume. As indicated there, the provision of complementary capital, in the physical sense, offers the principal solution to the problem of employment. The Six-Year Programme is a programme of capital formation. But as already emphasised it is partial in that it is confined to the public sector. The programme by itself does not, therefore, provide a measure of the maximum volume of employment that is likely to be created over the six-year period. The latter must include the employment generated by private investment. The Programme together with other aspects of Government policy, seeks to stimulate and encourage expansion in the private sector. But in the absence of specific private sector programmes no assessment of the total of employment to be created could be made.

There is, unfortunately, no satisfactory measure of the magnitude of either unemployment or under-employment in Ceylon. The number of registrants at the Employment Exchanges at the end of March, 1955, was 67,557. The unemployment estimate of over 500,000 persons in 1953, indicated in the Consumer Finance Survey of the Central Bank, included both the urban and the rural areas. The process of differentiating unemployment from under-employment in the rural areas, however, is hardly practicable. Moreover, the survey was not specifically designed to estimate unemployment. An interpretation of the survey data is, therefore, difficult.

In addition to the existing volume of unemployment there is also the problem of future increases to the work force. The population of Ceylon has in recent years been increasing by about 200,000 persons per year. If the increase in the work force is around 40 per cent. of the total its amount would be around 80,000 persons annually. It is difficult to assess the proportion of the increased work force that would seek employment in the urban areas. In 1953 the urban population represented 15 per cent. of the total population. If allowance is made for migration from the rural areas and a proportion of 20 per cent. is assumed, the addition to the work force in the urban areas would be around 16,000 persons per year. Simplified estimated of this nature, based as they are on inadequate data are, however, somewhat precarious. They are only of use in affording rough dimensions to the problem.

An attempt was made to assess the additional employment that would arise out of the Six-Year Programme. As mentioned in Chapter I the employment arising out of an investment programme is of two kinds. There is, first, the 'revolving' employment created in the construction of projects, and, second, the permanent employment generated after the projects are completed and brought into operation.

The figures below present the results of a preliminary tabulation of the data relating to the several projects included in the Six-Year Programme. The estimates are tentative and subject to revision and improvement. They represent an initial attempt to assess the employment content of a programme. The figures are based on data supplied by the Ministries and Departments in consultation with such constructional authorities as the Public Works Department. Table I relates to constructional employment. It compares the estimated employment on the *construction* of projects during the current year 1954–55 with the average employment to be generated during the remainder of the six year period. The difference in the number employed between the two dates provides a broad measure of the increase in constructional employment arising over the six-year period. An average over the period 1955–56 to 1959–60 has been used for the purpose of this estimate as the volume of annual employment is dependent on the phasing of expenditures.

Table II shows the estimated numbers that would be employed during the period on the *operation* or working of the various Ministry projects included in the Six-Year Programme. The figures for each year have been cumulated to show the increase in employment from the year of commencement of the programme to the last year 1959–60. The estimates represent, therefore, the total additional employment over the six-year period for the operation of projects.

TABLE 1

Six-Year Programme—Constructional Employment

Category	*Number employed* 1954–55	*Number employed* 1955–56 to 1959–60 (*Average per year*)	*Increase No.*
Administrative and Clerical	2,095	2,538	443
Technical	3,470	4,360	890
Skilled Workers	22,562	39,526	16,964
Unskilled labour	71,366	94,970	23,604
Total	99,493	141,394	41,901

TABLE 2

Six-Year Programme—Operational Employment

Category	*Estimated increase in permanent Employment at end of Six-Year Period* *No.*
Administrative and Clerical	4,854
Technical	4,988
Skilled Workers	38,081
Unskilled labour	46,972
Total	94,895

The data provided in the tables above are naturally confined to the projects and outlays which figure in the Six-Year Programme. They do not include the possible expansion in the cadre of Government on account of factors unrelated to its investment outlays. They do not include also the employment that would result from an implementation of the Colombo North Reclamation Scheme.

The impact of the Six-Year Programme on employment is not confined to the constructional and operational employment of wage labour. The settlement of peasant farmers on colonisation schemes also makes a considerable contribution towards relieving the pressure of surplus labour in the rural areas. Outlays designed to improve the efficiency

of production in the rural areas also contribute towards the sustenance of the rural population. The problem in the rural areas in fact is more a problem of improving productivity and living standards than of providing wage jobs.

The settlement of peasant families and colonists arising out of the Six-Year Programme is shown in the figures below. These do not include the additional employment in secondary activities which normally emerge around colonisation schemes.

SIX-YEAR PROGRAMME

Colonization and Settlement

(Number)

Description of Scheme	*Families*
1. Colonization by Land Development and Land Commissioner—	
(*a*) on Irrigation schemes	30,000
(*b*) on Crown land alienated for cultivation of commercial crops ..	7,000
2. Colonization by Gal Oya Development Board	6,030
Total ..	43,030*

*This figure does not include 100,000 families to be settled under Village Expansion Schemes.

The indirect impact of the Six-Year Programme on employment should also be recognised. The outlays envisaged in the programme involve a considerable demand for domestic materials and services. The stimulation of activity in the industries providing these services should contribute towards an expansion in employment. In addition, the disposal of the increased money incomes generated by the programme would involve a secondary demand for goods and services which would also help in sustaining and expanding employment.

The creation of additional employment cannot naturally be the sole criterion in the determination of priorities in a public sector programme. Projects, whose employment content is limited, have often to be included in the programme on other grounds. Nevertheless, a high volume of investment does make a substantial contribution towards the provision of additional employment. The process of investment is continuous. A progressive expansion in its magnitude over the years to come will be creative of a rising volume of employment, both in the construction and the operation of projects.

Ancillary aspects of the Programme

AS already indicated, an extensive effort was made in the preparation of the programme to obtain the sort of data needed for a continued improvement in the process of programming. An initial tabulation of some aspects of the programme is presented below :

(*a*) LOCAL AND FOREIGN COSTS

A division of the total outlays envisaged in the programme between local expenditures and direct foreign expenditures is shown below. The local expenditures measure the initial impact of the Programme on domestic money incomes. The foreign expenditures broadly measure its initial impact on the demand for imported capital goods. The effects of these expenditures on prices and on the balance of payments would, of course, depend on the manner in which the programme is financed. A sound technique of finance will avoid an inflationary rise in prices or a dissequilibrium in the balance of payments. This aspect of the problem is discussed in the succeeding chapter.

SIX-YEAR PROGRAMME

Local and Foreign Costs

(*Rs.* '000)

Ministry	*Foreign Costs*	*Local Costs*	*Total*
Defence and External Affairs	53,287	73,278	126,565
Finance	5,256	6,979	12,235
Justice	3,196	6,933	10,129
Home Affairs	7,209	72,606	79,815
Lands and Land Development	80,302	663,412	743,714
Agriculture and Food	28,114	157,425	185,539
Health	43,474	74,822	118,296
Local Government	45,179	114,188	159,367
Education	44,985	100,183	145,168
Labour	4,789	21,180	25,969
Commerce, Trade and Fisheries	4,400	26,035	30,435
Industries, Housing and Social Services	56,818	116,605	173,423
Posts and Broadcasting	48,668	24,695	73,363
Transport and Works	345,562	299,206	644,768
Total	771,239	1,757,547	2,528,786
Percentage	30.5	69.5	100

(b) THE CREATION OR ACQUISITION OF PHYSICAL ASSETS

The classification of the Six-Year Programme in accordance with the various spheres of investment indicates the general pattern of priorities. An alternative classification by the type of asset to be created or acquired reveals the claims which the Programme is likely to make on physical resources. Such a classification is of use in appraising the adequacy of these resources for the fulfilment of the programme. The principal types of assets involved in a process of investment or capital formation are land, building, equipment, and other constructional items like roads and dams. A preliminary classification of the Six-Year Programme on these lines is presented below.

SIX-YEAR PROGRAMME

By Physical Assets

(Rs. '000)

Ministry	*Type of Asset created or acquired and value of investment thereon*				*Total Investment*
	Land	*Building*	*Equipment*	*Other*	
Defence and External Affairs	7,682	85,463	33,420	—	126,565
Finance	—	10,022	2,104	109	12,235
Justice	—	10,129	—	—	10,129
Home Affairs	940	33,462	24,918	20,495	79,815
Lands and Land Development	34,260	203,088	95,659	410,707	743,714
Agriculture and Food	15,733	26,502	9,353	133,951	185,539
Health	1,873	111,466	4,655	302	118,296
Local Government	20,250	45,418	39,082	54,617	159,367
Education	6,050	108,765	26,246	4,107	145,168
Labour	143	1,818	3,008	21,000	25,969
Commerce, Trade and Fisheries	4,591	13,663	3,449	8,732	30,435
Industries, Housing and Social Services	11,369	98,449	44,686	18,919	173,423
Posts and Broadcasting	1,090	17,373	48,438	6,462	73,363
Transport and Works	18,342	52,463	357,262	216,701	644,768
Total	122,323	818,081	692,280	896,102	2,528,786
Percentage	4·8	32·4	27·4	35·4	100

(c) AUTHORITIES OF EXECUTION

The Six-Year Programme will be implemented through a number of constructional authorities such as the Public Works Department, the Irrigation Department, the Public Health Engineer, Foreign contractors, &c.

An assessment of the total cost of projects included in the Six-Year Programme for which the various authorities would be responsible is shown below. These figures are not, of course, confined to only the constructional portions of the total cost of projects.

EXECUTING AUTHORITIES

(Rs. '000)

Ministry	*Total value of projects on which construction work is to be done solely by P. W. D.*	*Total value of projects on which construction work is to be done by the P. W. D. in association with other authorities or solely by other authorities*	*Total value of projects*
Defence and External Affairs	123,133	3,432	126,565
Finance	10,049	2,186	12,235
Justice	10,129	—	10,129
Home Affairs	28,218	51,597	79,815
Lands and Land Development	700	743,014*†	743,714
Agriculture and Food	31,792	153,747	185,539
Health	77,387	40,909††	118,296
Local Government	—	159,367*	159,367
Education	39,567	105,601§	145,168
Labour	1,969	24,000	25,969
Commerce, Trade and Fisheries	—	30,435	30,435
Industries, Housing and Social Services	15,191	158,232	173,423
Posts and Broadcasting	60,793	12,570	73,363
Transport and Works	354,788	289,980*	644,768
Total	753,716	1,775,070	2,528,786
Percentage	29·8	70·2	100

* Includes work performed by Foreign Contractors.
† Includes work performed by Gal Oya Development Board and Irrigation Department.
†† Includes work performed by Chief Public Health Engineer.
§ Includes work performed by School Works Engineer.

(*d*) OUTPUT AND RECURRENT COSTS

An attempt was made to assess, in quantitative terms, the physical output of goods and services arising out of the completion of the Programme. A similar attempt to assess the impact of the Programme on the recurrent budget of the Government was also made. These exercises, however, are are not as yet complete. It is hoped to make their results available at a latter stage together with revised and more detailed material on the other various aspects of the Programme.

CHAPTER 5

BUDGETARY POLICY AND THE PROGRAMME

THE projects included in the Six-Year Programme broadly involve a total expenditure during the plan period of Rs. 2,500 million. This figure is, of course, a rough estimate and is in practice liable to alteration. The accuracy of the estimate depends on the degree of realism behind the costing of projects and behind the time-tables set out for their implementation. Both the costing and phasing of projects are based on estimates provided by the individual ministries and departments. The costing of projects has been done, almost without exception, on the basis of present prices. The time tables of construction have been established on technical factors and on administrative capacities for implementation. Revisions to the total cost of the programme may, of course, be necessary at a future date. This is, perhaps, unavoidable since price variations may occur, and time tables be disturbed by delays and bottlenecks of an unforeseeable character.

Apart from the difficulties of accurate estimation, however, the programme as a whole requires the maintenance of at least a stable level of capital expenditure over the six-year period. Marked fluctuations in the magnitude of capital expenditure could be particularly harmful. Such fluctuations disrupt, in a technical sense, the smooth and efficient implementation of projects. They also aggravate the instability of incomes and employment in the economy as a whole. The avoidance of these fluctuations where possible should, for these reasons, form an intimate part of policies and measures designed for the financing of the programme.

Since the Six-Year Programme covers only the public sector, the primary agency for financing it is naturally the annual budget. The amount of expenditure required each year for the implementation of the programme would have to be provided through the budget. The question of finance is, therefore, closely related to the general problem of budgetary policy and can only be considered within this context.

The programme has been based on an average level of annual expenditures comparable to those actually provided for in recent years. The fluctuating nature of the level of resources made necessary a decision on these lines. As shown in Capter III, a process of projecting future levels of resources on the basis of hypothetical assumptions is singularly unreal in a country like Ceylon. Changes in external conditions swiftly undermine

the most elaborate of forecasts. There would not, for this reason, be much value in setting up an assumed budget of financial resources for the six-year period as a whole. It is a necessary condition of sound finance in Ceylon that a decision on the appropriate manner of financing a budget be taken annually in the light of prevailing economic and monetary conditions. Any attempt to determine, in advance, the specific magnitudes of various sources of finance over the six-year period is, in essence, contrary to this requirement. The financing of the Six-Year Programme is intimately related to the wider question of budgetary policy. It would, therefore, be more realistic to outline, in the first place, the general requirements of such a policy in a country like Ceylon, and to relate to this outline the specific issues which determine the financing of the programme.

The Framework of Budgetary Policy

BUDGETARY policy over the six-year period would have a two-fold objective. It must, in the first place, provide for budgets which are sound in an overall sense. In addition it must, within this framework, provide for the expenditure requirements of the Six-Year Programme. A clear understanding of the implications of these objectives is of crucial importance to the financing of the programme.

THE NATURE OF CYCLICAL FLUCTUATIONS

Ceylon has an open economy in which the share of export or imports in the national income is particularly large. The dependence on foreign trade has rendered the economy extremely susceptible to fluctuations whose sources are external. These fluctuations, which are largely transmitted through export prices, result in a marked instability of incomes and employment in important sectors of the economy. Thus, in periods of high export prices, incomes and employment increase, while in periods of low prices, incomes and employment fall. At the same time, these fluctuations affect the course of Ceylon's balance of payments. In periods of boom or prosperity the balance of payment tends to be favourable, whilst in periods of recession it tends to be adverse.

The two-fold effect of price fluctuations, on incomes and employment on the one hand, and on the balance of payments on the other, is of central importance to the whole question of budgetary policy. There has, in recent years, been a considerable widening of the scope of fiscal policy. Modern budgets are no longer confined to the narrow limits of providing sources of finance for public expenditure. They aim at serving a wider purpose, and

constitute a major instrument of policy for influencing the economy as a whole. Budgetary policy in Ceylon must, of course, adapt itself to these requirements. But it should, at the same time, be recognised that such a policy is faced with problems of a distinctive character, arising out of the special nature of the Ceylon economy.

THE PROBLEM OF CONFLICTING OBJECTIVES

The two-fold nature of the impact of external fluctuations on Ceylon confronts budgetary policy with a special problem. If in periods of recession, the budgets aim at offsetting the decline in incomes and employment they would have to be expansionist in character. This would mean the introduction of deficit budgets, which provide for a level of total outlays in excess of current revenues, and which expand the total money supply of the country. Expansionist budgets, however, tend to sustain or increase the demand for imports, and to thereby aggravate still further the unfavourable balance of payments position. On the other hand, if budgetary policy were to aim at correcting the adverse balance of payments position, it would need to be contractive in its effects. Contractive budgets in times of recessions, however, adversely affect incomes and employment. They thereby aggravate the problem of instability. The objectives of sustaining incomes and of stemming the drain in external assets may, for these reasons, require opposite or contrary fiscal policies.

A relatively neutral policy of consistently balancing the budget through good years and bad does, in a sense, offer a partial way out of the problem. But such a course would only succeed in avoiding the negative consequences of the type of policy mentioned earlier. Balanced budgets, unlike expansionist ones, would not generally aggravate the balance of payments position. Nor would they, like contractive budgets, intensify the fall in incomes and employment. There are, however, severe limitations to a policy of attempting to balance the budget equally through periods of boom and recession. The rise in revenues which usually accompanies a period of prosperity will, in the context of a balanced budget, involve either the raising of expenditures or the lowering of taxes. On the other hand, the fall in revenues which follows the recession would require either a lowering of expenditures or a raising of taxes. Both these courses, however, are quite undesirable. An unstable level of expenditure would prove disruptive of the orderly execution of a development programme ; a raising of taxes in lean years would impose unwarranted burdens on the community. A

policy of balancing the budget through all phases of the cycle does not, therefore, offer a satisfactory solution. It may not, in fact, make possible the financing of an evenly phased development programme.

ELEMENTS OF A COMPENSATORY POLICY

There is, however, a certain type of policy which can satisfy the conflicting requirements, during a recession, of the balance of payments on the one hand and of incomes and employment on the other. Expansionist budgets in such periods tend to aggravate the adverse balance of payments position, to hasten the fall in external assets, and ultimately to endanger the external value of the rupee. It is the last of these consequences which, in the final analysis, constitutes the crux of the problem. A fall in external assets need not in itself endanger the external value of the rupee if the volume of external assets are large enough to withstand the strain, and if the process is confined to certain safe limits. These conditions can be satisfied if fiscal policy makes a conscious effort to build up the level of external assets during the preceding period of prosperity. There is, of course, a normal tendency for such assets to rise in periods of boom on account of the temporary or cyclical savings of the community. But this increase in itself is not enough. External assets temporarily built up by the rest of the community will be eventually run down by the latter in time of need. A parallel attempt by fiscal policy to run these down will only result in imposing an additional strain. The proper solution is for fiscal policy to supplement still further the normal boom time increase in external assets. This it can do by a policy of budgeting for a surplus in periods of prosperity. An overall budget surplus implies an excess of total revenues, exclusive of borrowing, over total outlays both current and capital. It restricts, therefore, the disposable incomes of the community and reduces the demand for imports. The attainment of an overall surplus in a period of boom, however, involves two things. It involves first, a restraint on total expenditure, and second, the maintenance and possibly the increasing of taxation. The magnitude of the desired surplus cannot, of course, be determined mechanically. It would depend on the possible amplitude of the cyclical fluctuations and the extent to which the stability of future expenditure needs to be preserved.

The accumulation of external assets through a policy of budget surpluses in good times will make possible a compensatory policy of deficit financing in depressions. This will protect the stability of expenditure and facilitate the undisturbed implementation of a development programme. It will also have beneficial effects on incomes and employment. The larger the

accumulation of reserves in the boom, the greater the ability to sustain expenditure in the depression. A policy of surplus budgets in times of boom, followed by deficit budgets in times of depression need not, however, imply that the budgets are on average balanced over the full period of a cycle. This would only be necessary if an element of long term growth is totally absent. In practice, a degree of expansion is likely to take place, specially in the presence of a substantial investment programme. It is not, therefore, necessary that the surplus in the boom precisely offsets the deficits in the depression. The average effect of the budget over the full cycle may well be expansionist.

QUANTITATIVE CONTROLS

Two further points merit consideration. The first concerns the scope for quantitative controls on trade as an instrument for correcting disequilibrium in the balance of payments. The second relates to the significance of Government borrowing as an instrument of budgetary policy.

Quantitative controls on trade are often a necessary instrument of regulation where payments problems arise for reasons unconnected with general disequilibrium in the economy. They, therefore, have a special place in circumstances where multilateral trade is absent and currencies are inconvertible. Quantitative controls may also prove helpful as temporary expedients to stem the adverse effects of monetary disequilibrium until corrective policies get under way. However, such controls suffer from severe limitations as permanent instruments for safeguarding the balance of payments against continued inflationary pressures brought on by deficit financing or other means. If they are effective in restricting the volume of imports in the background of a rising demand, they tend to generate an inflationary rise in prices. Such a rise in prices, apart from its social effects, may further aggravate the balance of payments problem through the raising of costs and the reduction in output in the export sector. A vicious spiral may, therefore, ensue. If the policy of controls is accompanied by offsetting taxation and revenue surpluses, it will tend, in practice, to be superfluous. The latter would in themselves constitute a corrective force against inflationary pressures.

INTERNAL BORROWING

The second point concerns the question of Government borrowing. During periods of rising export prices the cash reserves of the banking system tend to increase. Outlets for the sound investment of funds by banks

in the private sector are at the same time relatively scarce, and a resulting problem of excess liquidity may arise. This situation tends to facilitate the raising of loans by Government on an appreciable scale. The analysis in the preceding paragraphs, however, suggests that budgetary policy should aim at overall surpluses in periods of prosperity. This implies that even if loans were to be raised during such times they should not be used for financing public expenditures. What then is the logic of borrowing in a boom ? The answer is of two kinds. On the one hand, the raising of loans may serve the needs of sound banking by providing the banking system with an outlet alternative to speculative investment. On the other, it may help to convert purely temporary or cyclical savings into something more permanent. This would particularly apply to those non-bank subscribers to Government bonds who substitute the latter for cash balances and hold them till maturity. Government loans may, in addition, by improving the incomes or reducing the costs of the banks, enable the latter to offer attractive terms to savings depositors and to thereby stimulate savings. To the extent, however, that subscriptions to Government loans represent a purely temporary conversion of short term savings, pressures are likely to arise with the reversal of boom conditions for the monetising of funds. This again underlines the danger of prematurely disposing of the receipts of Government borrowing through public expenditure.

CONCLUSIONS

The analysis above throws out four conclusions of relevance to the financing of the Six-Year Programme. The first conclusion is that the financing of the Six-Year Programme could not be separated from the financing of the Government's total budget. The second conclusion is that the way in which the total budget is financed would depend on the general requirements of fiscal policy as a whole rather than on the specific types of expenditures incurred. Thus, it would not be possible to lay down mechanical rules specifying, for instance, that current expenditure should be financed out of revenue or that capital expenditure should be financed out of borrowing. In certain conditions it may be desirable to finance the whole budget out of revenue, whilst in others it may be permissible to finance a substantial part of it out of borrowings or out of past balances. The third conclusion is that a decision concerning the most appropriate method of financing the budget will have to be taken each year in the light of the general requirements of the economy. This would involve an annual appraisal of such factors as the commodity situation, the balance of payments prospects, and the level of external assets. A conscious decision on the overall character of the budget could then be made. The fourth

conclusion is that within the framework of the annual budget decision, the amount of funds available for capital would depend on the competing requirements of current expenditure. The firmer the restraints placed on current expenditure, the greater the possible magnitude of capital expenditure.

The conclusions noted above are also of relevance to the presentation of the budget estimates. The present format of the official estimates in Ceylon has developed in the background of a system of budgeting that has since outgrown itself. It does not reveal clearly the basic financial processes which underline budgetary policy. The need has, perhaps, arisen for a revision of the format of the estimates to serve the dual requirements of overall policy on the one hand, and the control of expenditure on the other.

Financing the Six-Year Programme

THE specific factors which would determine the way in which the Six-Year Programme is financed may now be outlined. The total cost of the programme as mentioned is about Rs. 2,500 million. This implies an average annual expenditure over the period as a whole of nearly Rs. 420 million. To this amount must be added the probable requirements each year for certain capital items of a miscellaneous or minor nature which could not be specifically programmed for. In the financial year 1953/54 provision was made in the budget estimates for a level of expenditure on *all* capital items of Rs. 411 million. In the current year 1954/55 which is also the first year of the programme the corresponding provision was Rs. 450 million. The average provision required for the rest of the period is not, therefore, substantially different from the provisions that have already been made in the recent past.

RECENT PATTERNS OF FINANCE

The relative buoyancy, on average, of commodity prices and revenues during the last two years, together with a rigorous budgetary policy, have made possible the realisation of overall budgetary surpluses over the latter period. The scale of these surpluses has been increased by the under-spending of money provisions for capital expenditure. This implies that the whole of the capital budget in each of these years was financed out of current revenues. These results were not, of course, originally budgeted for. Thus the budget for 1953/54 anticipated an overall deficit of Rs. 80 million, whilst the budget for 1954/55 provided for a deficit of Rs. 60 million to be financed out of the recent London Loan. Subsequent

improvements in commodity prices and enhanced revenues resulted in a revision of the overall result. In consequence, the proceeds of Government borrowing, together with the actual budget surpluses, contributed towards an augmenting of the Government's cash balances.

The pattern of finance over the financial years 1953-54 and 1954-55 is shown below :

Pattern of Finance (Rs. million)

	1953-54*	1954-55†
Current expenditure	687·5 ..	781·3
Capital expenditure (*a*)	298·4 ..	405·0
Total expenditure	985·9 ..	1186·3
Revenue and receipts from special accounts (*b*)	1043·1 ..	1206·4
Surplus	57·2 ..	20·1

Since the average annual expenditure envisaged under the Six-Year Programme is comparable to the provision made in the last two years, no special problem of financing them need arise given the continuance of similar conditions. If, in other words, external conditions and commodity prices through the rest of the period remain at, say, the average 1954/55 levels, if a strict restraint is placed on the rise of current expenditures, and if tax revenues are also sustained, the financing of the Six-Year Programme could be effected out of domestic resources and within the confines of sound budgets. A substantial volume of foreign aid or foreign borrowing would in these conditions make possible an expansion of the overall magnitude of the programme through the implementation of projects on the supplementary list.

FUTURE DEVELOPMENTS

It must, however, be recognised that a number of factors may alter the dimensions of the budget over the remaining period of the Six-Year Programme. These include a possible increase in current expenditures, a change in tax revenues due to non-cyclical factors, and an alteration in external conditions. These factors are considered in turn below.

* Actuals.
† Revised estimates (Provisional).
(*a*) Includes capital expenditures in current budget and Capital expenditure financed from special accounts.
(*b*) Other than receipts from borrowing.

(A) CURRENT EXPENDITURES

As indicated earlier, the magnitude of funds available for capital expenditure, within an overall budget decision, will vary inversely with the requirements of current expenditure. The maintenance of a sizeable development programme would, therefore, require the strictest control on all current expenditures other than those which emerge out of the programme itself. There are, of course, a number of factors which would contribute towards a progressive expansion in current expenditures. The latter could, for example, expand through an increase in the rate of emoluments to personnel in the public service. The expansion in the current expenditure provision for the financial year 1955-56 is due in part to the recent advancement of salary scales. Current expenditures also tend to rise annually on account of normal increments to salaries, a rising interest burden on the public debt, pension payments, and similar factors. The expansion of the existing services and functions performed by the Government or the introduction of new ones are further causes of an increase in current expenditure. These are often unavoidable in conditions of an increase in population. Similarly, subsidy schemes and losses on Government trading tend to swell the magnitude of current expenditures. There are, moreover, the increases in current expenditures which arise out of the development programme itself. The implementation of a such programme often requires an increase in staff which expands the permanent cadre of departments. In addition, projects once completed have to be put into active operation and adequately maintained.

It is not possible to measure the magnitude of the pressures on current expenditures that may be imposed in the future by all the factors discussed above. However, the successful implementation of the Six-Year Programme does require the strictest control over current expenditure and the strongest efforts to improve efficiency and reduce waste. An attempt is being made to assess the increase in recurrent expenditure that is likely to arise out of the implementation of the Six-Year Programme itself. It is hoped to present the results of this in due course.

(B) TAX REVENUES

The second of the factors mentioned earlier is the possible change in revenues due to non-cyclical factors. Total revenue has, been rising continuously over the post-war period. It is hardly possible, however, to distinguish between increases due to cyclical factors and to changes in tax rates, on the one hand, and to long term growth in the economy on the other. There is, of course, the likelihood, other things remaining

constant, of a trend increase in revenues over the six-year period. The Six-Year Programme will itself contribute towards this through its general effects on the expansion of the economy. Thus, a higher level of incomes, an expanded export output, and an enhanced outlay on imports, will each, in one way or another, promote an expansion in revenues at existing tax rates. Additional rates of taxes and new taxes are a further source. The latter factor has, in fact, been recently examined by the Taxation Commission and a number of recommendations have been made. It is not, possible to estimate the total increase in revenue that may accrue on account of all the non-cyclical factors mentioned here. Whether such an increase would accrue at all will depend, in part, on the behaviour of the cyclical factors themselves. But if they do accrue they would go at least part of the way to compensate for the trend increase in current expenditures.

(c) CHANGES IN EXTERNAL CONDITIONS

The third and possibly the most important of the factors that remain to be considered is a change in external conditions over the six-year period. There are broadly four possibilities.

(*a*) A progressive improvement over the period as a whole of export prices, the terms of trade, and the level of revenues.

(*b*) An upward movement of these factors over the early period of the plan followed by a decline in the later period.

(*c*) A downward movement in the early years of the plan followed by a subsequent recovery in the later period.

(*d*) A progressive decline throughout the six-year period as a whole.

A progressive improvement in external conditions over the six-year period would, provide the most favourable background for the financing of the Six-Year Programme. Indeed, a sustained improvement in these conditions may make possible an expansion in the magnitude of the programme as a whole through the introduction of additional projects on the supplementary lists and through the speeding up of projects already included. This process would be particularly feasible towards the later period of the plan when the likelihood of a sustained improvement is established and when the administrative machinery is better adapted to execute a larger programme. The expansion in the programme as a whole towards the later period would, in these conditions, be consistant with the requirements of a sound budgetary policy aimed at a preliminary harnessing of external assets.

A temporary improvement in external conditions over the early years of the programme followed by a subsequent deterioration would have somewhat different implications. As indicated earlier, a policy of budgetary surpluses in the initial period would be desirable in order to augment the level of external assets. This may then be followed by deficit budgets in the less favourable years. The implementation of the programme as a whole at an even rate would in this way be possible. But this implies that the programme should not be prematurely expanded during the favourable period. Such a course could only lead either to unsound finance during the recession or to a disruption of the programme through a wasteful retrenchment in expenditures.

A deterioration in external conditions in the early phase of the programme, followed by a subsequent recovery, poses a special problem. The type of counter cyclical policy outlined in the earlier part of this chapter cannot, of course, be initiated during a depression. It depends on the prior accumulation of external assets during a preceding phase of prosperity. Where these assets have not been accumulated to an adequate degree, a policy of maintaining expenditures through deficit financing may not prove feasible. In these conditions the financing of the Six-Year Programme during its early stages may pose a special problem. Recourse may then be necessary to one or more of such temporary measures as a scaling down of current expenditures, borrowing from abroad, or a reduction in the magnitude of the programme itself.

There is a mild degree of correspondence between the situation discussed here and the actual budgetary position for the forthcoming year 1955/56. A deterioration in external conditions through a fall in tea prices has taken place. This factor, together with an expansion in current expenditure, has not made it possible to avoid an overall deficit whilst making provision for an adequate degree of capital outlays. A moderate deficit, however, has been found feasible. As already stated, there have been overall surpluses in the two previous years. The beneficial effects of these on the level of external assets should make possible a moderate overall deficit in 1955/56. A continued deterioration in external conditions in the near future may, of course, aggravate the problem of financing the Six-Year Programme in 1956/57. This difficulty would be particularly large in the absence of the tax collection on the high incomes generated by the 1954 boom. External aid or external borrowing may then be needed if the programme is to be sustained.

The fourth of the possibilities mentioned earlier—a progressive deterioration in external conditions throughout the six-year period as a whole—is, the worst of the alternatives that could afflict Ceylon. The

financing of the Six-Year Programme would in these conditions be severely jeopardized. There are, perhaps, two basic courses : The receipt of foreign aid or foreign loans to fill the gap or a scaling down of the programme as a whole. The flexibility of the programme from the point of view of a reduction in scale is, however, limited. It would, in practice, be confined to the possibility of postponing the commencement of new projects. The retarding or abandoning of projects that have already been started is often wasteful and seldom practicable.

RESOURCES FROM ABROAD

It may, perhaps, be useful to single out from what has been said above, the specific role that foreign aid or foreign borrowing could play in the financing of the Six-Year Programme. Apart from external aid hitherto received, the programme has been formulated on the basis of the possible volume of domestic resources which, in the light of recent experience, are likely to be available to the Government. In a relatively under-developed country these resources must in themselves be of a relatively moderate order. They could not for this reason satisfy all the pressing needs of the country or make possible a quick solution of all urgent problems. The role of supplementary resources from abroad is, therefore, quite clear. Such resources would make possible a welcome expansion in the scale of the programme and of the development effort of the country in conditions where the expected level of domestic resources is realised. On the other hand, they would make possible the simple maintenance of the existing scale of the programme if the level of domestic resources were to fall short of expectations. In either contingency the role of external resources is crucial.

Ceylon has in recent years been receiving, in addition to technical assistance, a sum of approximately Rs. 20 million a year in the form of aid under the Colombo Plan. This aid has been of considerable value in the implementation of a number of projects. The continued availability of such aid and, if possible, its future expansion would naturally go far toward the sustenance or the speeding up of the pace of development. Ceylon has also in recent times raised two loans, one from the London Market and one from the I. B. R. D. The existence of similar sources of foreign borrowing in the future would likewise contribute towards the financing of development. Additional external resources may be applied to projects which figure in the programme itself, to projects in the supplementary list, or to entirely new projects that may be designed in the future. In all cases their net effect would be to enable a higher rate of development than would otherwise be possible.

CHAPTER 6

THE IMPLEMENTATION OF THE PROGRAMME

THE availability of finance, discussed in the preceding chapter, is only one of the factors on which the implementation of the Six-Year Programme depends. Of equal importance is the adequacy of physical and administrative capacities. The marked increase in the capital outlays of the Government is one of the striking features of public finance in recent years. Estimates of gross capital formation in the economy suggest that in 1952 and 1953 Government investment even exceeded the total of private investment. This increase in the capital outlays of Government has naturally imposed heavy demands on the Administration. It has involved problems of adaptation, in relation to both size and organisation. These problems were of significance to the preparation of programmes. They are likely to be of relevance to their implementation as well.

Lags in Spending

THE reality of the problem of physical and administrative capacities in implementing programmes is emphasised by the experience of recent years. The figures below compare, for each of the financial years in the past, the actual expenditures incurred by Government with the budgetary provisions authorised by Parliament. The figures are shown by two categories—expenditures chargeable to revenue and loan fund expenditures. The former consists mainly, though not exclusively, of current expenditure. The latter is entirely capital.

Shortfalls in Expenditure 1947–48 to 1953–54

(Rupees Million).

Year	*Total Provision (Inclusive of Supplementaries)*		*Actual Expenditure*		*Under Expenditure as % of Total Provision*	
	Revenue Budget	*Loan Fund*	*Revenue Budget*	*Loan Fund*	*Revenue Budget*	*Loan Fund*
1947–48	690.2	123.6	622.9	65.1	9.74	47.31
1948–49	588.1	178.0	547.9	119.7	6.84	32.75
1949–50	611.0	213.6	563.2	152.9	7.83	28.41
1950–51	870.5	200.9	804.9	143.1	7.53	28.78
1951–52	1,192.9	372.3	1,023.0	202.1	14.26	45.72
1952–53	1,033.4	392.0	927.5	218.9	10.25	44.16
1953–54	853.6	248.9	794.6	161.8	6.92	35.00

The figures shown here clearly underline the tendency for actual performance in the sphere of capital works to lag behind initial expectations. A certain amount of underspending in works of this nature is, perhaps, unavoidable. But the continuance during the six-year period of a shortfall of the order of magnitude shown above would certainly affect the implementation of the programme as a whole. The underspending of authorised provisions on capital works may in select cases represent a genuine saving of costs through a lowering of prices or an improvement in efficiency. But in the main these shortfalls are caused by a slackening of the rate of implementation and a retarding of time tables. Their principal effect is to slow down the rate of progress and to swell up the volume of committed expenditures in subsequent years.

Avenues of Improvement

THE problems presented by this tendency of actual expenditures to fall short of authorisations are essentially of three kinds. They are, first, the problems of improving the accuracy of estimating ; second, the problems of reducing delays due to procedural causes, and third the problems of improving the physical capacities of departments and other authorities responsible for the execution of projects. Each of these problems may be considered in brief.

IMPROVEMENTS IN ESTIMATING

Realism in estimating is naturally of considerable importance. A sound system of estimating should reflect existing constructional capacities ; it should present a true picture of possible expenditure. Excessive or optimistic estimates only produce a distortion of magnitudes and a misallocation of financial resources. Alternative uses get denied of funds, and both the pace of development and the decisions of the budget are adversely influenced. The process of estimating is, of course, confronted by problems of uncertainty. A moderate degree of divergence between estimated and actual expenditure is, therefore, unavoidable. But the magnitude of the divergence in recent years is more than could be justified by this factor. A consistent shortfall should provide in itself sufficient grounds to make allowance, in the process of estimating, for delays and uncertainties.

As mentioned in a preceding chapter the phasing of expenditures in the present programme has itself been afflicted by the difficulties of accurate estimation. Estimated expenditures over the period of the programme tend

to be crowded towards the earlier years with a resulting decline in the later period. This has made necessary a revision of the phasing of new projects in the future to conform to both the availability of funds and to a progressive improvement in constructional capacities.

REDUCTIONS IN PROCEDURAL DELAYS

Various delays of a procedural nature sometimes account for a slowing down of work and a shortfall in expenditure. This head broadly includes all factors other than limitations in physical capacities. Procedural delays can arise at various stages in the implementation of a project. Delays in commencement, however, seem to be particularly frequent. Expenditures on projects cannot, naturally, be incurred before the commencement of the new financial year and the authorisation of the budget by Parliament. But some of the stages precedent to the incurring of expenditure, such as calling for tenders and ordering equipment, have also to await final authorisation. Delays in the acquisition of land are a further cause of the retarding of time tables, as are also unforeseen delays in the arrival of imported equipment. There are, in addition, numerous other factors of a similar nature. A comprehensive analysis of problems of this sort, with a view to the smoothing out of procedural difficulties, is a step which would necessarily have to follow the preparation of an initial programme. Improvements in this direction will shortly be introduced by the Treasury.

IMPROVEMENTS TO PHYSICAL CAPACITY

The third factor which could affect the implementation of a programme is a limitation in the physical or constructional capacities of the various authorities responsible for the execution of projects. Limitations in physical capacity arise out of an inadequacy of personnel and out of a scarcity of material resources. These shortages affect both Government Departments and the constructional industry in general.

The principal authorities responsible for the execution of the capital works in the Six-Year Programme are the Public Works Department and the Department of Irrigation. Actual constructional work is sometimes done by the work force of the Departments themselves, but in many cases, particularly in respect of buildings, the task is handed out to private

contractors on a system of tenders. In the case of specialised works of large dimensions contracts are awarded to foreign constructional firms. The distribution of the six-year programme by agencies responsible for the execution of projects was shown in the table on page 42.

The ability of the various Governmental agencies depicted there to carry out the expenditures allotted to them would depend, in part, on the adequacy of staff. Provision has already been made for an expansion in the cadre of the major constructional departments. Further extensions are likely to the extent needed by the Programme. Such extensions are necessary even in cases where contracts are awarded to outside agencies as the task of supervision has to be carried out by the Departments. Measures will shortly be introduced to reorganise the Public Works Department. On present estimates, the annual capacity of the Public Works Department for buildings is around Rs. 60 million. The annual capacity of the Irrigation Department for constructional work is around Rs. 20 million. Limitations in the capacity of the latter Department may make it necessary to give out to outside contractors the construction of the four new major irrigation projects included in the Programme. Effective extensions to departmental capacities cannot, however, be made in a very short period. New recruits to staff have to undergo a period of training. There is usually a time lag before they can make an effective contribution to the constructional capacity of departments. The expansion in constructional capacity is, for this reason, likely to be larger towards the later period of the programme.

The scarcity of physical resources in the constructional industry is an additional limitation. It concerns both material resources and skills. The importance of buildings and other constructional works in an investment programme is sometimes overlooked. Outlays in most spheres of investment involve the creation of physical assets of this type. The share of buildings and other types of construction in the entire six-year programme is shown below.

Six-year Programme—Expenditure on Physical Assets

Type of Asset created or Acquired	*Value of Investment (Rs. '000)*
Land	122,323
Buildings	818,081
Equipment	692,280
Other	896,102
Total ..	2,528,786

The last of the four categories in the table largely comprises such assets as dams, roads, causeways, &c., which involve the use of materials produced by the constructional industry. The total claims of the programme on the building materials industry are, therefore, likely to be substantial. A scarcity of these resources, as well as of contractors in the building industry, could both retard the execution of a programme and lead to a raising of costs. Measures to expand the capacity of the constructional and building materials industry are, therefore, related in a close way to the problem of implementing the Programme. Both the absence of an adequate response to tenders and defaults by contractors have, in the past, contributed towards a slowing down of the rate of execution of projects.

A shortage of skills is a further aspect of constructional capacity. In the preparation of the Six-Year Programme an attempt was made to estimate the labour requirements in technical and manual skills for the construction of projects. Assessments of this sort, must, of course, be regarded as approximations, but they offer a general basis for an appraisal of training facilities during the six-year period. Details of these estimates concerning the various types of skill are at present being prepared.

In addition to the labour requirements for the construction of projects, the six-year programme also involves an expansion in operational employment. A similar assessment of the additional operational employment that would be created by the Programme within the various groups of technical and skilled categories is being prepared.

It is important for the implementation of the Programme that facilities for the training of skills are adequate to fulfil its broad requirements. A number of training schemes are, of course, in existence at present. The co-ordination and expansion of these schemes over the period of the programme are of considerable importance. An Inter-departmental Co-ordinating Committee on Apprenticeship has already been established and steps have been taken to ascertain, in more detail, the specific types of skill required for the Programme. Facilities for the training of skills will then have to be adapted to meet these requirements as well as those of the private sector. Extensions to these facilities may possibly need to be on an emergency or short-term basis during the initial stages. At least the minimum degree of skills required may be provided in this way.

Facilities for technical assistance from abroad are also of importance. Such facilities are already provided by the Colombo Plan and by the United Nations and its Specialised Agencies. They include the provision of experts and specialists from outside as well as the training abroad

of local personnel. The formulation of the Six-Year Programme has made possible the co-ordination of requests for technical assistance. Such requests can now be related to the needs of the programme.

Progress Reports

THE successful implementation of the Six-Year Programme requires a regular review of progress. It is only through such reviews that difficulties and bottlenecks in the execution of a programme are revealed. It is also through these reviews that revisions and adaptations to a programme are introduced. As emphasised earlier it is of special importance, in the circumstances of Ceylon, to sustain the continuity of a planning process. The Six-Year Programme itself would need periodical review and adaptation in the background of changing conditions. This is one of the essential tasks of the planning organisation. It is a necessary condition for a progressive improvement in planning techniques.

CHAPTER 7

THE PROGRAMME AND THE PRIVATE SECTOR

THE programme outlined in the preceding chapters would by itself make a significant contribution towards the development of a number of spheres of the economy. The principal objective of most of the investment outlays included in the programme is to lay the basis for a cumulative process of growth and expansion. This process, however, requires the participation of not only the Government but the private sector as well. The present programme does not include individual programmes of private investment. But it seeks to stimulate and assist the private sector in a number of important ways.

General Relationships

THE relationship of the present programme to development in the private sector is both general and specific. The general relationship is of two kinds. First, a wide range of government investments over the six-year period serves to improve the basic facilities and services of the economy as a whole. The expansion of production in general is often inhibited by the absence of facilities of this nature. The growth of enterprise in under-developed countries is retarded by inadequate systems of transport, communications, power, irrigation, technical skills, administration and even of health and education. The provision of these facilities by individual investors involves outlays of an exorbitant magnitude. At the same time their absence reduces efficiency and raises production costs. The emphasis that is given to these basic social overheads in the present programme has already been outlined. These overheads are, in a sense, the prerequisites of economic growth. They improve the environment for accelerated investment in the private sector.

The second type of general relationship arises out of the monetary impact of the present programme on the private sector. This impact is both direct and secondary. The dominant share of the total outlays envisaged by the programme would be expended locally. These outlays would directly involve a sizeable demand for a large variety of materials, services and skills. This demand should stimulate private activity over a wide range. This is particularly true of the entire constructional industry since buildings and construction work are prominent in most patterns of

investment. The secondary impact of the Government's programme is also of significance. A stable or rising level of development outlays contributes towards a buoyancy of money incomes and demand in the community. This demand helps to sustain and stimulate activity in the private sector through the provision of markets.

Specific Relationships

THE specific relationship of the present programme to the private sector covers a number of individual fields. The programme has been described as a public sector programme only because the outlays depicted in it are to be channelled through the Government. This does not imply, however, that these outlays are confined to investments in the public sector in the strict sense of the latter term. Thus, outlays for the rehabilitation of the export industries, for the expansion of rice production, for the development of fisheries, for the encouragement of industries, for the construction of residential houses and for a host of similar purposes are not essentially investments in the public sector. They represent the efforts of Government to promote development in spheres where actual production is undertaken by private individuals or concerns. In the sphere of agriculture, supplementary assistance by Government is particularly needed by small producers who are not generally in a position to undertake substantial investment outlays.

Many of the programmes mentioned above concern the improvement and expansion of existing spheres of activity. The development of the private sector involves, however, the creation of new fields of production as well. This is particularly true of the industrial sphere which has hitherto constituted only a very small segment of the total economy. It is part of Government policy to encourage the flow of private capital into industrial and allied spheres of investment. Government will for this reason refrain, other than in exceptional cases, from the direct construction and operation of new ventures in these fields.

The Government has, however, provided for positive measures to make these spheres of investment attractive to private enterprise. It has, for instance, sought to improve the inducements and incentives for private investment by the offer of specific tax concessions and exemptions in the system of direct taxation. It has sought to ease the problem of markets and production costs by the imposition, where justifiable, of protective tariffs, and by the reduction of import duties on raw materials, component parts and other capital goods. A continued adaptation of these measures may be needed in the future to meet the growing needs of development.

The Government has also sought to improve the availability of finance for the private sector. It will provide for this factor in three ways: by establishing a specialised credit institution in the form of a Development Finance Corporation ; by providing for participation with private enterprise in the establishment of new ventures ; and by setting up, through the Departments concerned, of borrowing facilities for small scale and cottage industries.

The Government has endeavoured to provide services of research, experimentation, and technical knowledge to the private sector. It has established an autonomous corporate body, the Ceylon Institute of Scientific and Industrial Research. The Institute will render a variety of technical services to private firms, producer associations, financial institutions and other organisations. In addition, research and experimentation in the sphere of small scale and cottage industries will be conducted through the Departments concerned.

The Government will also seek to improve the availability of skilled personnel to the private sector through its technical training programmes. Its educational programme provides for an increased emphasis on technical and vocational education through the setting up of trade schools, an Institute of Practical Technology, a College of Commerce, schemes for the training of apprentices and other measures.

There are, of course, a number of additional measures designed to help production and investment at specific points. Many of these are discussed in the chapters dealing with individual spheres. Some of the measures outlined above are also elaborated upon in later sections.

Foreign Investment

THE expansion of the private sector may be assisted by the investment of private foreign capital. Foreign investment is a means of supplementing domestic financial resources and of obtaining technical knowledge and skills. The Government has welcomed the investment of foreign capital in Ceylon. It has recently issued a white paper setting out the details of its policy in this respect. Negotiations have already been undertaken with foreign investors in connection with a number of ventures covering such fields as petroleum refining, sugar manufacture, the production of tyres, the exploitation of mineral sands and other industries. A shipping concern established jointly by domestic and foreign investors has already been started with Government participation. It is possible that productive activity will

commence in a number of the other spheres during the period of the programme. There is, in fact, considerable scope for local capital to participate jointly with foreign capital in the establishment of new production units.

As already emphasised, the total development effort of the community over the six-year period must comprise the investment outlays of both the Government and the private sectors. It is only this combined effort that can solve the problems of expanding output and increasing employment at a sufficiently rapid rate. The magnitude of the Government programme of investment is roughly Rs. 2,500 million over the six-year period. There is, unfortunately, no accurate data on the magnitude of private investment in Ceylon. An extensive survey of such investment in 1954 has recently been undertaken by the Department of Census and Statistics. Its results would shortly be made available. Existing National Income data, however, suggest that the level of private investment in the past has, except perhaps in the most recent years, exceeded the level of Government investment. It may, therefore, be reasonable to expect that total private investment over the six-year period, both domestic and foreign, will reach and even surpass, the magnitude of the Government's own outlays.

PART TWO

Six-Year Programme—Schedules of Estimated Expenditure

PART TWO

SIX-YEAR PROGRAMME—SCHEDULES OF ESTIMATED EXPENDITURE

THE Schedules which follow have been compiled on the basis of figures supplied by the individual Ministries.

These Schedules are of four different types :

Schedule A—Schedule of Committed Projects

This schedule indicates projects which were in hand at the beginning of the financial year 1954/55. In certain instances they include the annually recurrent capital outlays to which Government is committed by reason of policy (e.g. " Grants to Rubber Research Institute ").

Schedule B—Schedule of New Projects

This schedule indicates new projects for which initial provision was made in 1954/55 and for which provision will have to be made within the succeeding five years. In certain cases, increases over the normal annually recurrent outlays referred to in the paragraph above are included in this schedule.

Schedule C—Summary Schedule of Committed and New Projects

This schedule contains the combined totals of Schedules A and B and indicates the magnitude of the total programmes of individual Ministries. The estimated annual expenditures thereon as phased by the Ministries are also shown.

Schedule D—Supplementary Schedule of Projects

This comprises a list of those projects which certain Ministries were unable to include within the allocations of the Programme. They are noted for implementation if and when additional funds become available.

Overall Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Ministry	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*Estimated "carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
Defence and External Affairs ..	110,098..	32,038..	78,060..	15,483..	12,553..	11,434..	10,440..	6,916..	6,000..	62,826..	15,234
Finance	8,888..	6,090..	2,798..	1,010..	1,696..	92..	— ..	— ..	— ..	2,798..	—
Justice	1,548..	— ..	1,548..	390..	1,130..	28..	— ..	— ..	— ..	1,548..	—
Home Affairs	756..	445..	311..	175..	136..	— ..	— ..	— ..	— ..	311..	—
Lands and Land Development ..	831,906..	279,885..	552,021..	106,713..	99,059..	91,695..	80,827..	65,669..	56,332..	500,295..	51,726
Agriculture and Food ..	37,510..	3,211..	34,299..	5,912..	5,266..	6,431..	5,609..	5,613..	5,468..	34,299..	—
Health	79,122..	30,831..	48,291..	15,778..	14,993..	10,086..	4,123..	2,171..	600..	47,751..	540
Local Government ..	124,262..	16,895..	107,367..	16,636..	41,409..	18,477..	7,800..	7,800..	7,745..	99,867..	7,500
Education	173,710..	93,136..	80,574..	16,702..	13,324..	13,235..	9,250..	8,399..	5,260..	66,170..	14,404
Labour	24,000..	— ..	24,000..	4,000..	4,000..	4,000..	4,000..	4,000..	4,000..	24,000..	—
Commerce, Trade and Fisheries ..	5,929..	1,071..	4,858..	896..	769..	767..	714..	867..	845..	4,858..	—
Industries, Housing and Social Services	112,516..	67,900..	44,616..	18,734..	14,670..	7,037..	1,212..	1,010..	1,010..	43,673..	943
Posts and Broadcasting ..	33,239..	26,382..	6,857..	5,111..	975..	771..	— ..	— ..	— ..	6,857..	—
Transport and Works ..	603,854..	202,814..	401,040..	102,179..	97,069..	89,314..	51,515..	17,498..	15,214..	372,789..	28,251
Total ..	2,147,338	760,698	1,386,640	309,719	307,049	253,367	175,490	119,943	102,474	1,268,042	118,598

Overall Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Ministry	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Defence and External Affairs	127,817..	1,977..	4,529..	13,992..	13,534..	14,983..	14,724..	63,739..	64,078
Finance	12,737..	1,424..	3,397..	1,711..	949..	906..	1,050..	9,437..	3,300
Justice	8,581..	65..	599..	1,436..	2,070..	2,150..	2,261..	8,581..	—
Home Affairs	79,841..	4,823..	17,754..	26,521..	16,074..	8,274..	6,058..	79,504..	337
Lands and Land Development	859,998..	2,457..	11,853..	25,121..	41,484..	53,342..	109,162..	243,419..	616,579
Agriculture and Food	151,240..	16,414..	17,766..	31,392..	28,775..	28,766..	28,127..	151,240..	—
Health	70,545..	4,080..	15,126..	17,076..	15,400..	12,853..	6,010..	70,545..	—
Local Government	69,500..	167..	500..	35,108..	12,250..	6,337..	5,138..	59,500..	10,000
Education	78,998..	6,615..	10,555..	20,090..	14,245..	14,389..	13,104..	78,998..	—
Labour	1,969..	— ..	85..	478..	447..	460..	499..	1,969..	—
Commerce, Trade and Fisheries	25,577..	2,372..	3,767..	6,105..	5,157..	4,958..	3,218..	25,577..	—
Industries, Housing and Social Services	130,950..	16,615..	30,261..	40,200..	19,850..	12,500..	10,324..	129,750..	1,200
Posts and Broadcasting	66,506..	96..	3,135..	13,225..	13,312..	11,118..	25,620..	66,506..	—
Transport and Works †	345,793..	7,788..	22,834..	52,816..	67,247..	61,322..	59,972..	271,979..	73,814
Total ..	2,030,052	64,893	142,161	285,271	250,794	232,358	285,267	1,260,744	769,308

† Includes estimated foreign costs of Hydro Electric Scheme, Stage IIa.

Overall Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

Ministry	*Total Estimated cost*	*Expenditure incurred up to September 30, 1954, on Committed Projects*	*Estimated "carry-over" on Committed Projects and Total Estimated cost on New Projects*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure during Six-Year period*	*Estimated "carry-over" on October 1, 1960*
Defence and External Affairs ..	237,915..	32,038..	205,877..	17,460..	17,082..	25,426..	23,974..	21,899..	20,724..	126,565..	79,312
Finance	21,625..	6,090..	15,535..	2,434..	5,093..	1,803..	949..	906..	1,050..	12,235..	3,300
Justice	10,129..	— ..	10,129..	455..	1,729..	1,464..	2,070..	2,150..	2,261..	10,129..	—
Home Affairs	80,597..	445..	80,152..	4,998..	17,890..	26,521..	16,074..	8,274..	6,058..	79,815..	337
Lands and Land Development ..	1,691,904..	279,885..	1,412,019..	109,170..	110,912..	116,816..	122,311..	119,011..	165,494..	743,714..	668,305
Agriculture and Food ..	188,750..	3,211..	185,539 .	22,326..	23,032..	37,823..	34,384..	34,379..	33,595..	185,539..	—
Health	149,667..	30,831..	118,836..	19,858..	30,119..	27,162..	19,523..	15,024..	6,610..	118,296..	540
Local Government ..	193,762..	16,895..	176,867..	16,803..	41,909..	53,585..	20,050..	14,137..	12,883..	159,367..	17,500
Education	252,708..	93,136..	159,572..	23,317..	23,879..	33,325..	23,495..	22,788..	18,364..	145,168..	14,404
Labour	25,969..	— ..	25,969..	4,000..	4,085..	4,478..	4,447..	4,460..	4,499..	25,969..	—
Commerce, Trade and Fisheries ..	31,506..	1,071..	30,435..	3,268..	4,536..	6 872..	5,871..	5,825..	4,063..	30,435..	—
Industries, Housing and Social Services	243,466..	67,900..	175,566..	35,349..	44,931..	47,237..	21,062..	13,510..	11,334..	173,423..	2,143
Posts and Broadcasting ..	99,745..	26,382..	73,363..	5,207..	4,110..	13,996..	13,312..	11,118..	25,620..	73,363..	—
Transport and Works ..	949,647..	202,814..	746,833..	109,967..	119,903..	142,130..	118,762..	78,820..	75,186..	644,768..	102,065
Total ..	4,177,390	760,698	3,416,692	374,612	449,210	538,638	426,284	352,301	387,741	2,528,786	887,906

MINISTRY OF DEFENCE AND EXTERNAL AFFAIRS

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Major buildings for Police ..	25,000..	14,334..	10,666..	1,750..	2,000..	3,000..	3,000..	916..	— ..	10,666..	—
Ceylon Army, Navy and Air Force	85,098..	17,704..	67,394..	13,733..	10,553..	8,434..	7,440..	6,000..	6,000..	52,160..	15,234
Total..	110,098	32,038	78,060	15,483	12,553	11,434	10,440	6,916	6,000	62,826	15,234

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Major buildings for Police Department ..	46,062..	— ..	— ..	— ..	84..	3,000..	3,000..	6,084..	39,978
Acquisition for Police buildings ..	6,700..	700..	90..	1,335..	325..	325..	475..	3,250..	3,450
Equipment for Police	7,350..	1,207..	2,200..	593..	500..	500..	— ..	5,000..	2,350
Army, Navy and Air Force	60,708..	70..	2,064..	10,264..	10,035..	9,658..	10,317..	42,408..	18,300
Information Department—Construction of Film Unit ..	1,000..	— ..	175..	— ..	825..	— ..	— ..	1,000..	—
Overseas Missions—Quarters and Offices ..	3,432..	— ..	— ..	1,000..	1,000..	1,000..	432..	3,432..	—
Immigration and Emigration new Headquarters ..	565..	— ..	— ..	300..	265..	— ..	— ..	565..	—
Opening up Police Stations in areas newly developed ..	2,000..	— ..	— ..	500..	500..	500..	500..	2,000..	—
Total..	127,817	1,977	4,529	13,992	13,534	14,983	14,724	63,739	64,078

MINISTRY OF DEFENCE AND EXTERNAL AFFAIRS—(contd.)

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	*Expenditure incurred up to September 30, 1954, on Committed Projects*	*"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed Projects ..	110,098..	32,038..	78,060..	15,483..	12,553..	11,434..	10,440..	6,916..	6,000..	62,826..	15,234
New Projects	127,817..	— ..	127,817..	1,977..	4,529..	13,992..	13,534..	14,983..	14,724..	63,739..	64,078
Total..	237,915	32,038	205,877	17,460	17,082	25,426	23,974	21,899	20,724	126,565	79,312

MINISTRY OF FINANCE

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
New Secretariat Senate Square	4,363	4,353	10	10	—	—	—	—	—	10	—
New Secretariat, Anuradhapura	1,286	12	1,274	488	786	—	—	—	—	1,274	—
Clerks Quarters, Ratnapura	282	257	25	25	—	—	—	—	—	25	—
Clerks Quarters, Matale	161	159	2	2	—	—	—	—	—	2	—
Additions and Improvements to Explosives Magazine, Welisara	334	279	55	50	5	—	—	—	—	55	—
New Buildings for Government Stores Department	885	862	23	18	5	—	—	—	—	23	—
Radio Telephone Communication between Customs Launches and Points ashore in the North	177	160	17	17	—	—	—	—	—	17	—
Proposed new extensions to Government Press	1,400	8	1,392	400	900	92	—	—	—	1,392	—
Total	8,888	6,090	2,798	1,010	1,696	92	—	—	—	2,798	—

MINISTRY OF FINANCE—(contd.)
Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
New Secretariat and Conference Hall, Kandy ..	2,162..	675..	1,250..	237..	— ..	— ..	— ..	2,162..	—
General Service Quarters at Badulla and Galle ..	1,000..	500..	500..	— ..	— ..	— ..	— ..	1,000..	—
Five Senior Clerks Quarters and Ten Junior Clerks Quarters, Anuradhapura New Town	404..	100..	300..	4..	— ..	— ..	— ..	404..	—
General Service Quarters, Trincomalee	89..	— ..	— ..	89..	— ..	— ..	— ..	89..	—
General Service Quarters, Matara	89..	— ..	— ..	— ..	89..	— ..	— ..	89..	—
General Service Quarters, Kalutara	122..	— ..	— ..	66..	— ..	56..	— ..	122..	—
General Service Quarters, Colombo	3,600..	— ..	— ..	— ..	300..	500..	500..	1,300..	2,300
New Secretariat at Jaffna	1,200..	— ..	— ..	— ..	— ..	— ..	200..	200..	1,000
Acquisition at Matara and Kalutara	135..	— ..	— ..	135..	— ..	— ..	— ..	135..	—
Additions and Improvements to Customs Buildings at Outports and Colombo	520..	20..	100..	100..	100..	100..	100..	520..	—
Ten Type-plan Twin Quarters at Kankesanturai ..	235..	— ..	50..	90..	95..	— ..	— ..	235..	—
Twelve Type-plan Quarters at Point Pedro	270..	— ..	40..	115..	115..	— ..	— ..	270..	—
Flats for Customs Officers at Cliff House, Mutwal ..	471..	— ..	— ..	471..	— ..	— ..	— ..	471..	—
Installation of Electric Lights at Kankesanturai and Jaffna Jetties	3..	1..	2..	— ..	— ..	— ..	— ..	3..	—
Purchase of Machinery and Equipment for Government Press	2,183..	128..	1,055..	250..	250..	50..	250..	2,183..	—
Improvements to Government Press :									
Additional accommodation for Security Press and Kitchen and Fitters Workshop ..	138..	— ..	100..	38..	— ..	— ..	— ..	138..	—
Boundary extension with improvements to covered way ..	93..	— ..	— ..	93..	— ..	— ..	— ..	93..	—
Additional accommodation to the Warehouse, &c. ..	23..	— ..	— ..	23..	— ..	— ..	— ..	23..	—
Total ..	12,737	1,424	3,397	1,711	949	906	1,050	9,437	3,300

SCHEDULE C

Summary Schedule of Committed and New Projects

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	Expenditure incurred upto September 30, 1954, on Committed Projects	"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed Projects ..	8,888..	6,090..	2,798..	1,010..	1,696..	92..	— ..	— ..	— ..	2,798..	—
New Projects	12,737..	— ..	12,737..	1,424..	3,397..	1,711..	949..	906..	1,050..	9,437..	3,300
Total ..	21,625	6,090	15,535	2,434	5,093	1,803	949	906	1,050	12,235	3,300

MINISTRY OF JUSTICE

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Extensions to Court Buildings, Hulfsdorp, Stage I	1,100..	— ..	1,100..	250..	850..	— ..	— ..	— ..	— ..	1,100..	—
New Rural Courts* ..	70..	— ..	70..	65..	5..	— ..	— ..	— ..	— ..	70..	—
New Court House, Nuwara Eliya ..	378..	— ..	378..	75..	275..	28..	— ..	— ..	— ..	378..	—
Total ..	1,548	—	1,548	390	1,130	28	—	—	—	1,548	—

* Gangodawila and Amparai.

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954-55	1955-56	1956-57	1957-58	1958-59	1959-60		
Court House in Anuradhapura, New Town	515	65	450	—	—	—	—	515	—
Quarters for Judicial Officers and Presidents of Rural Courts	3,015	—	94	700	700	700	821	3,015	—
New Rural Courts	700	—	55	150	150	150	195	700	—
New Court House at Polonnaruwa	200	—	—	100	100	—	—	200	—
New Court House at Negombo	370	—	—	100	270	—	—	370	—
Fiscals Office, Gampaha	48	—	—	48	—	—	—	48	—
Fiscals Lockup, Ratnapura	38	—	—	38	—	—	—	38	—
New Court House, Trincomalee	250	—	—	100	150	—	—	250	—
Extensions to Court House, Kandy	300	—	—	200	100	—	—	300	—
Extensions to Court House, Matara	200	—	—	—	100	100	—	200	—
Extensions to Court House, Jaffna	200	—	—	—	—	200	—	200	—
New Buildings, D. C., Kegalla	200	—	—	—	—	100	100	200	—
New Court House, Ratnapura	400	—	—	—	—	100	300	400	—
New Court House, Mannar	245	—	—	—	—	100	145	245	—
Extensions to Court Buildings, Hulftsdorp, Stage II	1,900	—	—	—	500	700	700	1,900	—
Total	8,581	65	599	1,436	2,070	2,150	2,261	8,581	—

MINISTRY OF JUSTICE—(contd.)

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	*Expenditure Incurred upto September 30, 1954, on Committed Projects*	*"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1 1960*
				1954-55	1955-56	1956-57	1957-58	1958-59	1959-60		
Committed projects ..	1,548 ..	— ..	1,548 ..	390 ..	1,130 ..	28 ..	— ..	— ..	— ..	1,548 ..	—
New projects	8,581 ..	— ..	8,581 ..	65 ..	599 ..	1,436 ..	2,070 ..	2,150 ..	2,261 ..	8,581 ..	—
Total ..	10,129	—	10,129	455	1,729	1 464	2,070	2,150	2,261	10,129	—

MINISTRY OF HOME AFFAIRS

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
Training School for Youthful Offenders, Wathupitiwela ...	227...	216...	11...	10...	1...	— ...	— ...	— ...	— ...	11...	—
Borstal Expansion Scheme, Stage III	529...	229...	300...	165...	135...	— ...	— ...	— ...	— ...	300...	—
Total ...	756	445	311	175	136	—	—	—	—	311	—

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
57 sets of quarters and offices for D. R. OO. ...	4,489...	150...	400...	951...	1,350...	858...	780...	4,489...	—
Open Prison Camp, Galoya	1,528...	— ...	500...	700...	328...	— ...	— ...	1,528...	—
Quarters for Prison officers	1,970...	— ...	500...	237...	300...	196...	400...	1,633...	337
Certified School at Pallekelle	1,896...	— ...	450...	750...	696...	— ...	— ...	1,896...	—
Certified School at Wathupitiwela	1,398...	— ...	300...	498...	200...	200...	200...	1,398...	—
Additions and improvements, Certified School, Hikkaduwa ...	700...	— ...	400...	300...	— ...	— ...	— ...	700...	—
Improvements, &c., Record Presses. R., G. O.... ...	350...	— ...	169...	115...	56...	10...	— ...	350...	—

MINISTRY OF HOME AFFAIRS—(contd.)

Schedule of New Projects—(contd.)

SCHEDULE B—(contd.)

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
New Land Registries	900...	— ...	250...	250...	250...	150...	— ...	900...	—
Construction of cells in place of existing blocks, Mahara Prison	500...	77...	150...	148...	125...	— ...	— ...	500...	—
New Excise Warehouse-cum-bottling plant, Kalutara ...	*1,542...	200...	780...	237...	325...	— ...	— ...	1,542...	—
Division of wards, Mahara Prison	56...	45...	5...	6...	— ...	— ...	— ...	56...	—
Improvements to Zoo and land acquisition	800...	32...	330...	300...	138...	— ...	— ...	800...	—
Empty bottle store, Excise Warehouse, Kalutara ...	*10...	— ...	9...	1...	— ...	— ...	— ...	10...	—
Sterlizing Room, &c., Welikade Prison	17...	— ...	15...	2...	— ...	— ...	— ...	17...	—
Shutters to Record shelves, Land Registrar, Colombo ...	12...	— ...	10...	2...	— ...	— ...	— ...	12...	—
District Registrar's Office, Colombo Extensions ...	19...	— ...	16...	3...	— ...	— ...	— ...	19...	—
Garage Excise Warehouse, Jaffna	9...	— ...	9...	— ...	— ...	— ...	— ...	9...	—
Improvements to kachcheries and resthouses	3,740...	59...	23...	140...	1,200...	1,200...	1,118...	3,740...	—
Furniture and equipment, R. G. O.	283...	30...	78...	50...	50...	50...	25...	283...	—
Village works by R. D. Societies on self-help basis ...	16,800...	1,800...	3,000...	3,000...	3,000...	3,000...	3,000...	16,800...	—
†Handloom industry scheme	15,531...	1,000...	5,000...	6,500...	2,531...	250...	250...	15,531...	—
†Aid to minor and cottage industries	3,050...	50...	500...	500...	500...	750...	750...	3,050...	—
†Loans to Co-operative Industrial Societies and Unions ...	6,500...	1,000...	1,000...	1,000...	1,000...	1,250...	1,250...	6,500...	—
†Six Power Looms	7,500...	500...	1,200...	1,450...	1,450...	1,450...	1,450...	7,500...	—
Kachcheries at Polonnaruwa and Moneragala with quarters ...	4,500...	— ...	500...	4,000...	— ...	— ...	— ...	4,500...	—
New Kachcheri building and residency at Mannar ...	500...	— ...	— ...	— ...	250...	250...	— ...	500...	—
Bottling plant, &c., Excise Warehouse, Kandy ...	*890...	— ...	265...	300...	325...	— ...	— ...	890...	—
Excise Training School, Seeduwa	515...	— ...	— ...	250...	265...	— ...	— ...	515...	—
New Prison, Anuradhapura	1,150...	— ...	— ...	500...	250...	250...	150...	1,150...	—

* Implementation dependent on Governments' policy *re* prohibition.

† *Vide* Schedule B—Appendix I attached.

MINISTRY OF HOME AFFAIRS—(contd.)

Schedule of New Projects—(contd.)

SCHEDULE B—(contd.)

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated, "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Additions to Welikade Prison	181...	— ...	— ...	181...	— ...	— ...	— ...	181...	—
Borstal Institute, Hingurakgoda	1,750...	— ...	— ...	500...	600...	450...	200...	1,750...	—
Records repair workshop, Registrar General's Department ...	350...	— ...	— ...	100...	150...	100...	— ...	350...	—
Scheme for training industrial apprentices	3,400...	— ...	250...	700...	700...	700...	1,050...	3,400...	—
Establishment of Cottage Industries Institute ...	2,250...	— ...	— ...	700...	750...	550...	250...	2,250...	—
Establishment of Spinning Mill	3,500...	— ...	2,000...	1,500...	— ...	— ...	— ...	3,500...	—
3 Coir Workshops, Southern Province	900...	— ...	200...	150...	200...	150...	200...	900...	—
Children's Branch (approved schools)	80...	— ...	— ...	50...	10...	10...	10...	80...	—
Home Ministry Secretariat, Torrington Square	3,000...	— ...	— ...	1,500...	1,500...	— ...	— ...	3,000...	—
Total ...	92,566	4,943	18,309	27,571	18,499	11,824	11,083	92,229	337
Less Recoveries as shown in Appendix I	12,725...	120...	555...	1,050...	2,425...	3,550...	5,025...	12,725...	—
Net total ...	79,841	4,823	17,754	26,521	16,074	8,274	6,058	79,504	337

MINISTRY OF HOME AFFAIRS—(contd.)

The Schemes envisaged involve the issue of loans which are expected to be recovered as follows :

SCHEDULE B—APPENDIX I

(Figures in Rs. '000)

	Estimated Recoveries						Total Estimated recoveries within Six-Year period
	1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	
Handloom Industry Scheme	— ...	— ...	— ...	800...	1,500...	2,600...	4,900
Aid to Minor and Cottage Industries	20...	30...	150...	300...	500...	650...	1,650
Loans to Co-operative Industrial Societies and Unions	100...	400...	650...	950...	1,050...	1,150...	4,300
Six-Power Looms	— ...	125...	250...	375...	500...	625...	1,875
Total ...	120	555	1,050	2,425	3,550	5,025	12,725

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	*Expenditure incurred upto September 30, 1954, on Committed Projects*	*"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed Projects ...	756...	445...	311...	175...	136...	— ...	— ...	— ...	— ...	311...	—
New Projects	79,841...	— ...	79,841...	4,823...	17,754...	26,521...	16,074...	8,274...	6,058...	79,504...	337
Total ...	80,597	445	80,152	4,998	17,890	26,521	16,074	8,274	6,058	79,815	337

Supplementary Schedule

SCHEDULE D

(Figures in Rs. '000)

Description of Projects	*Estimated Total Cost*
New buildings and extension to existing buildings—Registrar-General's Department	4,175
Re-organisation of branch offices—Registrar-General's Department	2,061
Introduction of a system of registration of Title to Land	3,025
Establishment of a Women's Section in the Department of Rural Development	1,500

MINISTRY OF LANDS AND LAND DEVELOPMENT

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*" Carry-over " on October 1, 1954*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
Purchase of mechanical plant ..	32,000..	24,755..	7,245..	1,245..	2,000..	2,000..	2,000..	— ..	— ..	7,245..	—
Lifting gates of Verugal Anicut ..	248..	166..	82..	82..	— ..	— ..	— ..	— ..	— ..	82..	—
Mioya Diversion Scheme ..	2,100..	1,051..	1,049..	452..	450..	147..	— ..	— ..	— ..	1,049..	—
Minneriya Augmentation Scheme ..	3,100..	2,470..	630..	230..	400..	— ..	— ..	— ..	— ..	630..	—
Restoration of Huruluwewa Tank ..	4,200..	3,800..	400..	250..	150..	— ..	— ..	— ..	— ..	400..	—
Nalanda Oya Reservoir Scheme ..	7,250..	2,642..	4,608..	1,858..	1,200..	1,550..	— ..	— ..	— ..	4,608..	—
Iranamadu Scheme ..	1,500..	1,358..	142..	92..	50..	— ..	— ..	— ..	— ..	142..	—
Kelani Minor Flood Protection Scheme	2,650..	2,620..	30..	30..	— ..	— ..	— ..	— ..	— ..	30..	—
Kantalai Augmentation Scheme ..	19,500..	7,054..	12,446..	2,446..	2,000..	2,000..	2,000..	2,000..	2,000..	12,446..	—
Allai Extension Scheme ..	14,119..	4,515..	9,604..	1,985...	2,000..	2,000..	2,000..	1,619..	— ..	9,604..	—
Gin Ganga Flood Protection Scheme	1,509..	954..	555..	100..	100..	100..	100..	155..	— ..	555..	—
Muruthawela Anicut and Channels	1,060..	819..	241..	241..	— ..	— ..	— ..	— ..	— ..	241..	—
Panugala Anicut and Channels ..	640..	543..	97..	97..	— ..	— ..	— ..	— ..	— ..	97..	—
Kinigama Anicut and Channels ..	680..	539..	141..	61..	25..	55..	— ..	— ..	— ..	141..	—
Katupotha Tank Restoration ..	1,900..	705..	1,195..	595..	100..	500..	— ..	— ..	— ..	1,195..	—
Dumbutuluwewa and Topawewa Bunds	850..	303..	547..	47..	50..	100..	100..	250..	— ..	547..	—
Huruluwewa Scheme Irrigation and Access	7,000..	3,336..	3,664..	1,164..	700..	800..	1,000..	— ..	— ..	3,664..	—
Elahera Yoda Ela Bund Road regrading, &c.	650..	482..	168..	28..	140..	— ..	— ..	— ..	— ..	168..	—
Kandalama Tank Restoration ..	5,490..	2,467..	3,023..	1,533..	900..	590..	— ..	— ..	— ..	3,023..	—
Lemasuriyagama Ela improvements	556..	312..	244..	88..	150..	6..	— ..	— ..	— ..	244..	—
Periyamadu Tank ..	1,000..	431..	569..	169..	150..	250..	— ..	— ..	— ..	569..	—
Periya Pandivirichchankulam Restoration	580..	270..	310..	30..	100..	100..	80..	— ..	— ..	310..	—
Mapakadawewa Restoration ..	1,360..	887..	473..	273..	200..	— ..	— ..	— ..	— ..	473..	—
Kotiyagala Mahawewa Restoration	470..	233..	237..	152..	85..	— ..	— ..	— ..	— ..	237..	—
Elephant Pass Lagoon Scheme ..	1,620..	628..	992..	172..	200..	200..	200..	220..	— ..	992..	—

Schedule of Committed Projects—(contd.)

(Figures in Rs. '000)

Description of Project	Total Estimated Cost	Expenditure incurred up to September 30, 1954	"Carry-over" on October 1, 1954	Estimated Phasing of Expenditure 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
Kimbuluwana Oya Reservoir ..	1,200..	172..	1,028..	328..	350..	200..	150..	— ..	— ..	1,028..	—
Diulwewa Tank Restoration ..	500..	77..	423..	100..	100..	100..	123..	— ..	— ..	423..	—
Padawiya Road	2,550..	418..	2,132..	232..	600..	650..	650..	— ..	— ..	2,132..	—
Handapangalawewa Scheme ..	1,140..	140..	1,000..	210..	350..	220..	220..	— ..	— ..	1,000..	—
Giritale Augmentation Scheme ..	950..	759..	191..	111..	80..	— ..	— ..	— ..	— ..	191..	—
Badagiriya Tank Restoration ..	775..	22..	753..	278..	200..	200..	75..	— ..	— ..	753..	—
Akkarayankulam Irrigation ..	600..	154..	446..	146..	100..	200..	— ..	— ..	— ..	446..	—
Thannimurippu Tank Irrigation ..	1,080..	32..	1,048..	218..	200..	200..	200..	230..	— ..	1,048..	—
Iranamadu Tank, Irrigation ..	3,750..	1,113..	2,637..	787..	300..	300..	300..	300..	300..	2,287..	350
Padawiya Scheme ..	14,800..	498..	14,302..	2,202..	2,500..	2,000..	2,000..	2,000..	2,000..	12,702..	1,600
Pavatkulam Tank restoration ..	7,350..	348..	7,002..	1,752..	2,000..	2,000..	1,250..	— ..	— ..	7,002..	—
Vavunikulam Tank restoration ..	5,000..	147..	4,853..	703..	1,000..	1,000..	1,000..	1,150..	— ..	4,853..	—
Parakrama Samudra Scheme ..	5,537..	5,427..	110..	40..	70..	— ..	— ..	— ..	— ..	110..	—
Polonnaruwa-Tambala Trunk Road	725..	451..	274..	174..	75..	25..	— ..	— ..	— ..	274..	—
Grants to Galoya Development Board	426,609..	167,609..	259,000..	51,000..	41,960..	37,000..	34,000..	25,000..	24,000..	212,960..	46,040
Colombo South Drainage and Reclamation Scheme	850..	750..	100..	90..	10..	— ..	— ..	— ..	— ..	100..	—
Mahawelyaya Drainage Scheme ..	293..	260..	33..	25..	5..	3..	— ..	— ..	— ..	33..	—
Extension of Stores at Ratmalana ..	97..	93..	4..	4..	— ..	— ..	— ..	— ..	— ..	4..	—
Niribadduwa and Udugama Anicut	120..	69..	51..	31..	20..	— ..	— ..	— ..	— ..	51..	—
Yatawara-Panagoda Minor Flood Protection Scheme ..	103..	98..	5..	5..	— ..	— ..	— ..	— ..	— ..	5..	—
Composite Sewerage Ratmalana Housing Scheme ..	425..	47..	378..	— ..	300..	78..	— ..	— ..	— ..	378..	—
Madarawa Ela Anicut ..	43..	18..	25..	25..	— ..	— ..	— ..	— ..	— ..	25..	—
Akkarawita Minor Flood Protection Scheme	127..	70..	57..	42..	15..	— ..	— ..	— ..	— ..	57..	—
Kurrupumulla Tract ..	36..	15..	21..	18..	3..	— ..	— ..	— ..	— ..	21..	—
Kitulpe Ela Scheme ..	530..	406..	124..	64..	30..	30..	— ..	— ..	— ..	124..	—
Gampolawela Raja Ela Scheme ..	140..	22..	118..	48..	70..	— ..	— ..	— ..	— ..	118..	—

MINISTRY OF LANDS AND LAND DEVELOPMENT—(contd.)

Schedule of Committed Projects—(contd.)

SCHEDULE A—(contd.)

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Upper Anicut Atabage Oay Scheme	73..	27..	46..	23..	23..	— ..	— ..	— ..	— ..	46..	—
Hikkaduwa Post Flood Protection Scheme	360..	227..	133..	83..	50..	— ..	— ..	— ..	— ..	133..	—
Polwatte Gange Inundation Scheme	520..	368..	152..	2..	120..	30..	— ..	— ..	— ..	152..	—
Iddagoda Ela Scheme ..	91..	57..	34..	34..	— ..	— ..	— ..	— ..	— ..	34..	—
Galwetiya Anicut	164..	98..	66..	66..	— ..	— ..	— ..	— ..	— ..	66..	—
Mukurupe-Lemasooriya Ela Road..	200..	135..	65..	65..	— ..	— ..	— ..	— ..	— ..	65..	—
Goiyapana Drainage and Salt Water Extenoion Scheme ..	321..	15..	306..	60..	50..	75..	80 ..	41..	— ..	306..	—
Mahagalwewa Scheme ..	450..	56..	394..	144..	100..	150..	— ..	— ..	— ..	394..	—
Bogahaduwa Anicut ..	38..	15..	23..	23..	— ..	— ..	— ..	— ..	— ..	23..	—
Olumadu Tank Irrigation ..	50..	35..	15..	15..	— ..	— ..	— ..	— ..	— ..	15..	—
Periyathambini Tank Irrigation ..	150..	72..	78..	20..	— ..	58..	— ..	— ..	— ..	78..	—
Tachchanamaruthamadukulam Tank	42..	40..	2..	2..	— ..	— ..	— ..	— ..	— ..	2..	—
Kalmadukulam Scheme	360..	127..	233..	98..	135..	— ..	— ..	— ..	— ..	233..	—
Chemamadu Tank Scheme ..	465..	106..	359..	94..	100..	165..	— ..	— ..	— ..	359..	—
Arasamurippukulam Scheme ..	69..	54..	15..	15..	— ..	— ..	— ..	— ..	— ..	15..	—
Kalmadu Tank Irrigation ..	225..	22..	203..	78..	125..	— ..	— ..	— ..	— ..	203..	—
Kalvilankulam Irrigation ..	125..	5..	120..	50..	50..	20..	— ..	— ..	— ..	120..	—
Thachchanamaruthamadukulam Irrigation	30..	16..	14..	14..	— ..	— ..	— ..	— ..	— ..	14..	—
Windmill Irrigation-Urelu ..	70..	50..	20..	10..	5..	5..	— ..	— ..	— ..	20..	—
Sadawalakadaiadi Anicut ..	412..	411..	1..	1..	— ..	— ..	— ..	— ..	— ..	1..	—
Mavadiodai Anicut ..	420..	387..	33..	28..	4..	1..	— ..	— ..	— ..	33..	—
Madukumadu Anicut ..	41..	39..	2..	2..	— ..	— ..	— ..	— ..	— ..	2..	—
Ponnankerni Tank restoration ..	99..	78..	21..	12..	8..	1..	— ..	— ..	— ..	21..	—
Moranawewa Restoration and Irrigation ..	175..	58..	117..	70..	37..	10..	— ..	— ..	— ..	117..	—
Alaiadikulam Irrigation ..	40..	32..	8..	8..	— ..	— ..	— ..	— ..	— ..	8..	—
Kirankovai Tank Scheme ..	58..	19..	39..	28..	10..	1..	— ..	— ..	— ..	39..	—
Karandahela Tank Scheme ..	265..	108..	157..	62..	60..	35..	— ..	— ..	— ..	157..	—
Waddagama Tank-Irrigation ..	65..	16..	49..	20..	29..	— ..	— ..	— ..	— ..	49..	—

Schedule of Committed Projects—(contd.)

(Figures in Rs. '000)

Description of Project	Total Estimated Cost	Expenditure incurred up to September 30, 1954	"Carry-over" on October 1, 1954	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Kankanikulam Scheme ..	63..	32..	31..	26..	5..	— ..	— ..	— ..	— ..	31..	—
Pokkankulam—Restoration ..	65..	21..	44..	19..	25..	— ..	— ..	— ..	— ..	44..	—
Attanagalla Tank—Irrigation ..	480..	376..	104..	104..	— ..	— ..	— ..	— ..	— ..	104..	—
Hattota Amuna Scheme ..	300..	191..	109..	99..	10..	— ..	— ..	— ..	— ..	109..	—
Siyambalagamuwa Tank Scheme ..	460..	99..	361..	111..	250..	— ..	— ..	— ..	— ..	361..	—
Mahananeriya Tank Irrigation ..	75..	58..	17..	7..	10..	— ..	— ..	— ..	— ..	17..	—
Maha Horuwila Tank Restoration	231..	145..	86..	61..	25..	— ..	— ..	— ..	— ..	86..	—
Horuwila Tank Restoration ..	450..	238..	212..	80..	50..	82..	— ..	— ..	— ..	212..	—
Manankatiya Tank—Irrigation ..	160..	31..	129..	69..	50..	10..	— ..	— ..	— ..	129..	—
Halpanela Scheme ..	320..	251..	69..	19..	10..	40..	— ..	— ..	— ..	69..	—
Ilandakulama—Irrigation ..	88..	43..	45..	16..	15..	14..	— ..	— ..	— ..	45..	—
Pahalakalankutiya Tank Irrigation	68..	8..	60..	46..	14..	— ..	— ..	— ..	— ..	60..	—
Mahawewakkadawala Tank Scheme	188..	35..	153..	29..	50..	74..	— ..	— ..	— ..	153..	—
Ratmale Tank—Irrigation ..	78..	25..	53..	43..	10..	— ..	— ..	— ..	— ..	53..	—
Dalukanawewa—Irrigation ..	85..	56..	29..	29..	— ..	— ..	— ..	— ..	— ..	29..	—
Wickremasinghe Road—Giritale Scheme	167..	110..	57..	57..	— ..	— ..	— ..	— ..	— ..	57..	—
Hemberawawewa Scheme ..	130..	113..	17..	12..	5..	— ..	— ..	— ..	— ..	17..	—
Reconditioning Uma Ela Channel	81..	61..	20..	20..	— ..	— ..	— ..	— ..	— ..	20..	—
Yudaganawa Tank—Irrigation ..	125..	34..	91..	35..	10..	46..	— ..	— ..	— ..	91..	—
Balaharuwa Tank—Restoration ..	251..	41..	210..	99..	75..	36..	— ..	— ..	— ..	210..	—
Damma Ela Scheme ..	185..	121..	64..	19..	40..	5..	— ..	— ..	— ..	64..	—
Bodawala Anicut Scheme ..	73..	63..	10..	10..	— ..	— ..	— ..	— ..	— ..	10..	—
Welipatanwila Extension Scheme ..	46..	1..	45..	39..	5..	1..	— ..	— ..	— ..	45..	—
Pinnara Road-Minneriya Scheme	230..	50..	180..	50..	100..	30..	— ..	— ..	— ..	180..	—
Improvements (minor) to Village and major irrigation works and improvements to buildings, roads, Stores, &c.	13,200..	— ..	13,200..	2,200..	2,569..	2,110..	2,110..	2,110..	2,101..	13,200..	—
Roads and Buildings (Forest Department)	600..	— ..	600..	100..	100..	100..	100..	100..	100..	600..	—
Surveys and Demarcation (Forest Department)	180..	— ..	180..	30..	30..	30..	30..	30..	30..	180..	—

MINISTRY OF LANDS AND LAND DEVELOPMENT—(contd.)

Schedule of Committed Projects—(contd.)

SCHEDULE A—(contd.)

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Regeneration operation (Forest Department)	1,740..	— ..	1,740..	290..	290..	290..	290..	290..	290..	1,740..	—
Land Development* ..	138,047..	32,454..	105,593..	15,564..	19,667..	20,972..	18,169..	16,674..	12,061..	103,107..	2,486
Settling of colonists on minor irrigation works	14,200..	— ..	14,200..	1,500..	1,700..	2 400..	2,300..	3,200..	3,100..	14,200..	—
Subsidies for construction latrines, wells, &c., on Land Development Department allotments ..	48 800..	— ..	48,800..	9,750..	9,800..	7,300..	7,300..	7,300..	7,350..	48,800..	—
Acquisition of lands for Village expansion	18,000..	— ..	18,000..	3,000..	1,750..	3,000..	3,000..	3,000..	3,000..	16,750..	1,250
Total ..	831 906	279,885	552,021	106,713	99,059	91,695	80,827	65,669	56,332	500,295	51,726

* Vide Appendix I to Schedule A.

LAND DEVELOPMENT SCHEMES

SCHEDULE A

APPENDIX I

Schedule of Committed Projects

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
Allai	22,555..	7 5 .9..	15,006..	214..	884..	3,058..	3,273..	4,486..	2,705..	14,600..	406
Kantalai	29,659..	7,040..	22,619..	4,255..	4,284..	3,969..	3,947..	3,792..	2,026..	22,273..	346
Padawiya	22,891..	— ..	22,891..	1,001..	3,261..	3,445..	4,563..	4,680..	4,586..	21,536..	1,355
Pavatkulam	7,198..	282..	6,916..	1,739..	1,649..	2,134..	1,204..	190..	— ..	6,916..	—
Huruluwewa	12,041..	9,626..	2,415..	2,058..	357..	— ..	— ..	— ..	— ..	2,415..	—
Iranamadu	5,487..	2,836..	2,651..	2,201..	450..	— ..	— ..	— ..	— ..	2,651..	—
Kandalama	6,300..	989..	5,311..	598..	1,272..	1,794..	1,394..	253..	— ..	5,311..	—
Mapakadawewa ..	938..	120..	818..	667..	151..	— ..	— ..	— ..	— ..	818..	—
Mioya Diver ion ..	5,697..	2,311..	3,386..	824..	773..	1,489..	300..	— ..	— ..	3,386..	—
Katupotha	1,284..	711..	573..	497..	76..	— ..	— ..	— ..	— ..	573..	—
Periyamadu	1,637..	— ..	1,637..	117..	835..	569..	116..	— ..	— ..	1,637..	—
Yudaganawa	406..	36..	370..	312..	58..	— ..	— ..	— ..	— ..	370..	—
Siyambalangamuwa ..	634..	32..	602..	386..	181..	35..	— ..	— ..	— ..	602..	—
Chemmadukulam ..	983..	— ..	983..	127..	786..	70..	— ..	— ..	— ..	983..	—
Periyamadukulam ..	552..	— ..	552..	124..	349..	79..	— ..	— ..	— ..	552..	—
Periyapandi	1,526..	— ..	1,526..	127..	1,237..	162..	— ..	— ..	— ..	1,526..	—
Kotiyagala	737..	— ..	737..	132..	501..	104..	—	— ..	— ..	737..	—
Soraborawewa	1,409..	735..	674..	55..	563..	56..	— ..	— ..	— ..	674..	—
Kimbuluwana Oya ..	1,636..	— ..	1,636..	77..	874..	569..	116..	— ..	— ..	1,636..	—
Vannerikulam	169..	156..	13..	13..	— ..	— ..	— ..	— ..	— ..	13..	—
Beragama	71..	31..	40..	40..	— ..	— ..	— ..	— ..	— ..	40..	—
Mahagalwewa	816..	— ..	816..	— ..	193..	508..	115..	— ..	— ..	816..	—
Badagiriya	1,307..	— ..	1,307..	— ..	309..	814..	184..	— ..	— ..	1,307..	—
Kalmadukulam.. ..	653..	— ..	653..	— ..	154..	407..	92..	— ..	— ..	653..	—
Vavunikulam	9,825..	— ..	9,825..	— ..	470..	1,519..	1,671..	3,042..	2,744..	9,446..	379
Handapangala	1,636..	— ..	1 636..	— ..	— ..	211..	1,194..	231..	— ..	1,636..	—
Total..	138,047	32,454	105,593	15,564	19,667	20,972	18,169	16,674	12,061	103,107	2,486

MINISTRY OF LANDS AND LAND DEVELOPMENT—(contd.)

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Weligahakandiya Tank ..	600..	40..	80..	100..	100..	160..	120..	600..	—
Mahawilachchiya Tank Scheme	5,000..	200..	500..	1,000..	1,600..	1,500..	200..	5,000..	—
Inlet Channel Elahera-Minneriya	1,750..	200..	500..	650..	400..	— ..	— ..	1,750..	—
Inlet Channel Angamedilleriya Anicut	600..	100..	200..	200..	100..	— ..	— ..	600..	—
Dry Weather Road, Kantalai-Allai	1,000..	300..	200..	500..	— ..	— ..	— ..	1,000..	—
Workshop, Anuradhapura ..	1,470..	— ..	50..	120..	300..	500..	500..	1,470..	—
Nilwalaganga Flood Protection Scheme	2,700..	150..	400..	500..	500..	500..	650..	2,700..	—
Badulu Oya Scheme ..	2,538..	100..	250..	400..	750..	750..	288..	2,538..	—
Thannimurippu Augmentation Scheme	1,750..	50..	75..	200..	400..	500..	525..	1,750..	—
Gal Amuna Scheme ..	3,000..	— ..	70..	300..	500..	600..	600..	2,070..	930
Angamuwa Tank Scheme ..	2,500..	— ..	70..	100..	400..	500..	500..	1,570..	930
Karaugahawela Wewa Scheme	650..	— ..	50..	100..	200..	200..	100..	650..	—
Maha Andarawa Tank Scheme	580..	— ..	100..	150..	200..	130..	— ..	580..	—
Usgala Siyambalagamuwa Tank Scheme	3,350..	— ..	200..	500..	750..	750..	750..	2,950..	400
Yakadapotha Mahawewa Scheme	820..	— ..	75..	200..	150..	170..	125..	720..	100
Karawita Yodi Ela Scheme..	1,400..	— ..	70..	200..	250..	250..	230..	1,000..	400
Ettimolawewa Scheme ..	1,000..	— ..	75..	200..	300..	300..	125..	1,000..	—
Badagiriya Augmentation Scheme	1,400..	— ..	75..	300..	400..	300..	325..	1,400..	—
Ellagolla Anicut, &c., improvements	500..	— ..	20..	200..	200..	80..	— ..	500..	—
Akkayayan Kulan, Augmentation	1,800..	— ..	50..	300..	500..	500..	450..	1,800..	—
Moorawewa Scheme ..	3,000..	— ..	50..	200..	500..	500..	500..	1,750..	1,250
Hakwatuna Oya Reservoir Scheme	10,500..	— ..	300..	1,200..	2,500..	2,500..	2 500..	9,000..	1,500
Maha Oya Anicut Scheme ..	420..	100..	150..	100..	70..	— ..	— ..	420..	—
Bowatenna Scheme, Extension	42..	37..	5..	— ..	— ..	— ..	— ..	42..	—
Bogahawewa Restoration ..	130..	45..	25..	30..	30..	— ..	— ..	130..	—
Welmitiya Anicut Scheme Restoration	42..	32..	10..	— ..	— ..	— ..	— ..	42..	—
Yodawewa K. O. L. B. Scheme	57..	25..	32..	— ..	— ..	— ..	— ..	57..	—
Ridigama Tank W. L. B. Scheme	39..	25..	14..	— ..	— ..	— ..	— ..	39..	—
South Gronye Madampe Lake	35..	25..	10..	— ..	— ..	— ..	— ..	35..	—
Kovilmo daikulam Irrigation	24..	10..	14..	— ..	— ..	— ..	— ..	24..	—
Vavuniya Water Supply to quarters	8..	5..	3..	— ..	— ..	— ..	— ..	8..	—
Adchchalkulam, Irrigation ..	63..	25..	10..	28..	— ..	— ..	— ..	63..	—

(Figures in Rs. '000)

Description of Projects	Total Estimated Cost	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Mullaivadayan Irrigation	34..	28..	5..	1..	— ..	— ..	— ..	34..	—
Kandamalawewa Irrigation..	92..	50..	42..	— ..	— ..	— ..	— ..	92..	—
Migollawewa Tank Irrigation	80..	40..	40..	— ..	— ..	— ..	— ..	80..	—
Periyakadawela Tank, Restoration	112..	50..	60..	2..	— ..	— ..	— ..	112..	—
Tabbowa Scheme Channels..	17..	17..	— ..	— ..	— ..	— ..	— ..	17..	—
Dewahuwa Scheme Channels	110..	50..	60..	— ..	— ..	— ..	— ..	110..	—
Dewahuwa Tank Spill	48..	28..	20..	— ..	— ..	— ..	— ..	48..	—
Solanwewa Irrigation	37..	22..	15..	— ..	— ..	— ..	— ..	37..	—
Nelgamwewa Irrigation	53..	20..	23..	10..	— ..	— ..	— ..	53..	—
Mahanikawewa Scheme	133..	30..	50..	53..	— ..	— ..	— ..	133..	—
Meegasdigiliya Scheme (Tank)	79..	35..	20..	24..	— ..	— ..	— ..	79..	—
Maguruhetiyawa, Tank Irrigation	60..	50..	10..	— ..	— ..	— ..	— ..	60..	—
Mahakanamulla Tank Irrigation	42..	32..	10..	— ..	— ..	— ..	— ..	42..	—
Clearing Channels, Parakrama Samudra	90..	20..	70..	— ..	— ..	— ..	— ..	90..	—
Filter Blanket Minneriya Scheme	75..	50..	25..	— ..	— ..	— ..	— ..	75..	—
Water Supply, &c., to Moneragala Office, &c. ..	29..	24..	5..	— ..	— ..	— ..	— ..	29..	—
Soraborawewa Scheme Irrigation	390..	290..	100..	— ..	— ..	— ..	— ..	390..	—
Dehigahadenidola Scheme	85..	30..	25..	30..	— ..	— ..	— ..	85..	—
Uggalkoltota Scheme	57..	47..	10..	— ..	— ..	— ..	— ..	57..	—
Minnimaru Ela Minor Flood Protection Scheme ..	135..	— ..	50..	50..	35..	— ..	— ..	135..	—
Attidiya Velyaya Drainage	255..	— ..	75..	100..	80..	— ..	— ..	255..	—
Tammitta Amuna Scheme	50..	— ..	50..	— ..	— ..	— ..	— ..	50..	—
Anicut Across Uruwala Oya	59..	— ..	45..	14..	— ..	— ..	— ..	59..	—
Dee Ela Oya Anicut Improvements	55..	— ..	55..	— ..	— ..	— ..	— ..	55..	—
Workshop Ratmalana Improvements	120..	— ..	120..	— ..	— ..	— ..	— ..	120..	—
Paraduwa Diyagama Minor Flood Protection Scheme ..	216..	— ..	75..	100..	41..	— ..	— ..	216..	—
Aliassa Amuna Scheme	51..	— ..	30..	21..	— ..	— ..	— ..	51..	—
Panape Ela Scheme	45..	— ..	30..	15..	— ..	— ..	— ..	45..	—
Malamulla-Tantitimulla, S. W. E.	46..	— ..	25..	21..	— ..	— ..	— ..	46..	—
Drainage, &c., Hydraulic Laboratory	10..	— ..	10..	— ..	— ..	— ..	— ..	10..	—
Lemasooriyagama Road	98..	— ..	50..	48..	— ..	— ..	— ..	98..	—
Distribution Channels 17 miles, Minipe	18..	— ..	18..	— ..	— ..	— ..	— ..	18..	—
Kambarawa Channels improvements	36..	— ..	36..	— ..	— ..	— ..	— ..	36..	—

MINISTRY OF LANDS AND LAND DEVELOPMENT—(contd.)

Schedule of New Projects—(contd.)

SCHEDULE B—(contd.)

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Improvements to Dedduwa and Obadawatte	8	—	8	—	—	—	—	8	—
Ambalanduwa Kandagola S. W. E.	110	—	50	60	—	—	—	110	—
Madampe Lake Drainage	300	—	100	100	100	—	—	300	—
Kirama Tank, lowering of sill, &c.	10	—	10	—	—	—	—	10	—
Beragama Palle Beragama Road	96	—	50	46	—	—	—	96	—
Abraham Road, Walawe Scheme	68	—	40	28	—	—	—	68	—
Lucasgoda Road, Kirindi Oya Scheme	74	—	50	24	—	—	—	74	—
Irrigation Office and Stores, Hambantota	56	—	56	—	—	—	—	56	—
Giant Tank, Bund Pitching	190	—	50	70	70	—	—	190	—
Thavasikulam Scheme	125	—	25	50	50	—	—	125	—
Untharayankulam Scheme	186	—	50	50	50	36	—	186	—
Puttur Tidal Well Scheme Channel Extension	35	—	35	—	—	—	—	35	—
Radella Tank Scheme	310	—	50	75	100	85	—	310	—
Unnichchai Scheme Irrigation	45	—	20	25	—	—	—	45	—
Sadawakadi Anicut, pitching	45	—	20	25	—	—	—	45	—
Vakerni Scheme, Channel improvements	20	—	20	—	—	—	—	20	—
Bakmigoda Wewa improvements	44	—	25	19	—	—	—	44	—
Rotawrkulam Scheme	146	—	70	46	30	—	—	146	—
Bakinigalla Tank Scheme	130	—	40	50	40	—	—	130	—
Tinipitiwewa Channels, improvements	95	—	50	45	—	—	—	95	—
Ambagahawewa Irrigation facilities	93	—	50	20	23	—	—	93	—
Ihalakalankutiya Tank Scheme	260	—	75	60	125	—	—	260	—
Ambagahawewa Irrigation facilities	80	—	64	16	—	—	—	80	—
Ambasawewa Scheme	147	—	50	60	37	—	—	147	—
Aralaganwila Scheme	360	—	70	100	100	90	—	360	—
Ambalankulam Scheme	152	—	60	48	44	—	—	152	—
Galwewa Scheme	250	—	60	100	90	—	—	250	—
Mawakulam Scheme	194	—	60	75	55	4	—	194	—
Kandeganwela Tank Scheme	145	—	50	50	45	—	—	145	—
Magandana Oya Anicut Scheme	155	—	50	50	55	—	—	155	—
Minneriya Yodiela Road D 28	375	75	100	100	100	—	—	375	—

Schedule of New Projects—(contd.)

(Figures in Rs. '000)

Description of Projects	Total Estimated Cost	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Pungudutivu Salt Water Exclusion Scheme	49	—	25	24	—	—	—	49	—
Kaluganga Flood Protection Scheme	3,000	—	90	500	500	500	500	2 090	910
Purchase of Mechanical Plant	16,000	—	—	—	6,000	5,000	5,000	16,000	—
Drainage to Irrigation Buildings, Cotta Road	60	—	—	60	—	—	—	60	—
Irrigation Quarters, New Town Anuradhapura	280	—	—	80	200	—	—	280	—
Muthurajawela	1,786	—	—	6	315	309	556	1,186	600
Minipe Extension	28,910	—	—	—	110	320	160	590	28,320
Walawe Scheme	167,400	—	—	105	260	2,330	21,490	24,185	143,215
Hedaoya Scheme	94,025	—	—	55	415	420	285	1,175	92,850
Malwatu Oya Scheme	62,735	—	—	100	270	310	210	890	61,845
Kirindi Oya Scheme	83,550	—	—	50	195	150	315	710	82,840
Minor Irrigation Works (unspecified)	21,231	—	—	3,437	5,050	6,244	6,500	21,231	—
Roads and Buildings (Forest Department)	835	—	315	115	125	135	145	835	—
Regeneration Operations (Forest Department)	757	—	60	130	161	189	217	757	—
Timber Utilization (equipment)	160	—	52	27	27	27	27	160	—
Timber Utilization (research)	117	—	29	28	18	20	22	117	—
Divisional Office and Quarters at Anuradhapura (Forest Department)	360	—	—	180	180	—	—	360	—
Divisional Office (Forests) Bungalow at Galle	80	—	—	80	—	—	—	80	—
Forest School, Palugama	100	—	—	50	50	—	—	100	—
Forest Rangers' Quarters	160	—	—	40	40	40	40	160	—
Development of Crown Land in Commercial Crops (Subsidies &c.)	21,200	—	1,504	2,700	2,900	3,200	3,500	13,805	7,396
Development of Crown Land in Commercial Crops (Clearing, &c.)	29,387	—	3,103	6,571	6 571	6,571	6 571	29,387	—
Maha Eliya	315	—	75	100	100	40	—	315	—
Uggalkaltota	1,500	—	100	300	300	300	300	1,300	200
Land Development*	170,112	—	—	724	5,327	16,332	34,836	57,219	112,893
Colombo North Reclamation Scheme	100,000	—	—	—	—	—	20,000	20,000	80,000
Total	859,998	2,457	11,853	25,121	41,484	53,342	109,162	243,419	616,579

* Vide Appendix I to Schedule B.

MINISTRY OF LANDS AND LAND DEVELOPMENT—(contd.)

LAND DEVELOPMENT SCHEMES

Schedule of New Projects

SCHEDULE B—(contd.)

APPENDIX I

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Mahawilachchiya	8,185..	— ..	— ..	338..	2,175..	2,533..	2,678..	7,724..	461
Thannimuruppu	3,684..	— ..	— ..	232..	1,547..	1,473..	374..	3,626..	58
Akkarayankulam	3,271..	— ..	— ..	77..	453..	1,162..	1,348..	3,040..	231
Badulu Oya	4,092..	— ..	— ..	— ..	232..	2,203..	1,427..	3,862..	230
Yakadapotha Mahawewa	1,636..	— ..	— ..	— ..	— ..	155..	1,251..	1,406..	230
Usgala Siyambalangamuwa	4,913..	— ..	— ..	— ..	77..	835..	1,659..	2,571..	2,342
Karangahawela	983..	— ..	— ..	— ..	93..	751..	139..	983..	—
Angamuwa	4,092..	— ..	— ..	— ..	77..	835..	1,581..	2,493..	1,599
Gal Amuna	5,895..	— ..	— ..	— ..	248..	2,493..	2,693..	5,434..	461
Badagiriya Augmentation	1,965..	— ..	— ..	77..	348..	734..	690..	1,849..	116
Etimolwewa	1,636..	— ..	— ..	— ..	77..	758..	685..	1,520..	116
Walawe	74,505..	— ..	— ..	— ..	— ..	— ..	1,239..	1,239..	73,266
Hakwatuna Oya	7,478..	— ..	— ..	— ..	— ..	774..	3,503..	4,277..	3,201
Uggakaltota L. B. Scheme	1,602..	— ..	— ..	— ..	—	77..	755..	832..	770
Minipe Extension	46,175..	— ..	— ..	— ..	— ..	1,549..	14,814..	16,363..	29,812
Total ..	170,112	—	—	724	5,327	16,332	34,836	57,219	112,893

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	*Expenditure incurred up to September 30, 1954, on Committed Projects*	*"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed projects ..	831,906..	279,885..	552,021..	106,713..	99,059..	91,695..	80,827..	65,669..	56,332..	500,295..	51,726
New projects	859,998..	— ..	859,998..	2,457..	11,853..	25,121..	41,484..	53,342..	109,162..	243,419..	616,579
Total ..	1,691,904	279,885	1,412,019	109,170	110,912	116,816	122,311	119,011	165,494	743,714	668,305

MINISTRY OF AGRICULTURE AND FOOD

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
AGRICULTURAL RESEARCH, EXTENSION, &c.											
New building for School of Agriculture for Girls, Kundasale ..	1,887..	1,648..	239..	199..	40..	— ..	— ..	— ..	— ..	239..	—
Boys Farm School, Vavuniya ..	216..	103..	113..	48..	65..	— ..	— ..	— ..	— ..	113..	—
Bathmedilla Paddy Station Buildings	220..	20..	200..	200..	— ..	— ..	— ..	— ..	— ..	200..	—
Buildings at Maha Illupalama Farm	525..	508..	17..	17..	— ..	— ..	— ..	— ..	— ..	17..	—
Hingurakgoda Farm, Paddy Store..	97..	37..	60..	60..	— ..	— ..	— ..	— ..	— ..	60..	—
Cattle Breeding Station, Karagoda, Uyangoda, Water Supply improvements	20..	11..	9..	— ..	— ..	5..	4..	— ..	— ..	9..	—
Provision of engineering services to Departmental Farms ..	1,900..	— ..	1,900..	250..	250..	350..	350..	350..	350..	1,900..	—
Grants to Rubber Research Institute for Rubber Replanting Scheme*	138..	— ..	138..	23..	23..	23..	23..	23..	23..	138..	—
Grants to Coconut Research Institute	4,750..	— ..	4,750..	500..	500..	1,200..	850..	850..	850..	4,750..	—
Maintenance, Development and Extensions of Agricultural and Animal Husbandry* ..	2,500..	— ..	2,500..	420..	420..	420..	420..	420..	400..	2,500..	—
Pests and diseases control ..	600..	— ..	600..	14..	83..	133..	130..	120..	120..	600..	—
FOOD PRODUCTION											
Restoration of minor irrigation works	12,000..	— ..	12,000..	2,000..	2,000..	2,000..	2,000..	2,000..	2,000..	12,000..	—
Subsidised Paddy fertilisers ..	4,250..	— ..	4,250..	700..	725..	750..	725..	700..	650..	4,250..	—

* Capital expenditures only.

Schedule of Committed Projects—(contd.)

(Figures in Rs. '000)

Description of Project	Total Estimated Cost	Expenditure incurred up to September 30, 1954	"Carry-over" on October 1, 1954	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Subsidy on wells	2,000..	— ..	2,000..	375..	250..	450..	350..	350..	225..	2,000..	—
CO-OPERATIVE, MARKETING, &c.											
Stores for G. P. S. ..	175..	171..	4..	4..	— ..	— ..	— ..	— ..	— ..	4..	—
Permanent Buildings for School of Co-operation ..	1,710..	553..	1,157..	200..	500..	400..	57..	— ..	— ..	1,157..	—
Construction of permanent buildings for offices of Manning Market ..	69..	39..	30..	30..	— ..	— ..	— ..	— ..	— ..	30..	—
Rehabilitation of Tea Small Holdings through grants to Tea Producers' Societies	3,250..	— ..	3,250..	300..	300..	600..	600..	700..	750..	3,250..	—
Loans for the establishment of collecting depots (Tea Co-operatives)	1,000..	— ..	1,000..	500..	100..	100..	100..	100..	100..	1,000..	—
Test Bakery Magazine Road, Colombo	53..	7..	46..	36..	10..	— ..	— ..	— ..	— ..	46..	—
Food Control Store at Katugastota	90..	55..	35..	35..	— ..	— ..	— ..	— ..	— ..	35..	—
Co-operative Inspectors quarters at Mullaitivu and Mannar ..	60..	59..	1..	1..	— ..	— ..	— ..	— ..	— ..	1..	—
Total ..	37,510	3,211	34,299	5,912	5,266	6,431	5,609	5,613	5,468	34,299	—

MINISTRY OF AGRICULTURE AND FOOD—(contd.)

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
AGRICULTURAL RESEARCH, EXTENSIONS, &c.									
Buildings at Kundasale	100	100	—	—	—	—	—	100	—
Karapincha Farm, paddy store	9	9	—	—	—	—	—	9	—
Tissa Paddy Store	21	21	—	—	—	—	—	21	—
Boys' Farm school, Bibile	200	50	150	—	—	—	—	200	—
Rat proof store, Kantalai	51	49	2	—	—	—	—	51	—
Narahenpita Farm, well with pump	13	11	2	—	—	—	—	13	—
Taldena Farm, improvements to existing buildings	10	10	—	—	—	—	—	10	—
Kagama Farm, repairs-conversion of buildings	125	60	65	—	—	—	—	125	—
Karapincha Farm, six cottages	89	—	50	39	—	—	—	89	—
Veterinary lab. Peradeniya	300	—	100	100	100	—	—	300	—
Quarters for Agricultural Foreman at Tissamaharama	9	—	9	—	—	—	—	9	—
Ridiyagama Farm, six labour cottages	85	—	50	35	—	—	—	85	—
Okkampitiya Farm, fumigable rat proof store	19	—	16	3	—	—	—	19	—
Karadian Aru Farm, quarters for manager	20	—	20	—	—	—	—	20	—
Five twin cottages at Livestock Farm, Polonnaruwa	94	—	50	44	—	—	—	94	—
Boys' Farm School, Waipita, water service	18	—	15	3	—	—	—	18	—
Wariyapola Agricultural Station, water supply	50	—	50	—	—	—	—	50	—
Designing of agricultural implements	425	—	—	100	100	100	125	425	—
Courses of instruction in agricultural engineering	175	—	—	45	45	45	40	175	—
Coconut Rehabilitation Subsidy for manure	9,000	—	—	2,700	1,800	2,100	2,400	9,000	—
Coconut Rehabilitation—Loans for soil conservation	1,000	—	—	1,000	—	—	—	1,000	—
Establishment of rice Research Institute and intensification of research	4,000	—	—	1,600	800	800	800	4,000	—
Rice extension-promotion of improved techniques	1,100	—	—	200	250	300	350	1,100	—
Intensification of cotton research	70	—	5	30	35	—	—	70	—
Intensification of Pasture research	10	—	10	—	—	—	—	10	—
Intensifications of Horticultural research	74	—	15	15	15	15	14	74	—
Publicity : Strengthening of Audio Visual Section	243	—	—	60	60	60	63	243	—
Implementation of Soil Conservation Act and investigation of soil erosion problems	200	—	—	50	50	50	50	200	—
Financial assistance to small holders for soil conservation measures	1,000	—	—	500	250	150	100	1,000	—

(Figures in Rs. '000)

Description of Projects	Total Estimated Cost	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Tobacco Development in terms of recommendations of S. P. XVII/1952—									
(a) Medium term loans for construction of the curing barns	2,300..	— ..	— ..	650..	600..	550..	500..	2,300..	—
(b) Financial assistance to cultivating, curing and marketing	1,000..	— ..	— ..	600..	150..	125..	125..	1,000..	—
Development of Animal Husbandry by combatting endemic, deseases ; promotion of veterinary research and etc.—									
(a) Food Department	500..	— ..	— ..	150..	150..	150..	50..	500..	—
(b) Combatting endemic diseases	225..	— ..	50..	75..	50..	50..	— ..	225..	—
(c) Promotion of veterinary research	1,000..	— ..	100..	200..	200..	250..	250..	1,000..	—
(d) Goat and sheep Farming, Polonnaruwa ..	125..	— ..	60..	16..	16..	16..	17..	125..	—
Establishment of agricultural Resident and Day schools ..	1,850..	— ..	— ..	150..	600..	600..	500..	1,850..	—
Establishment of medicinal Herb Farms	313..	— ..	— ..	— ..	100..	100..	113..	313..	—
Rubber Rehabilitation Scheme*	105,000..	15,000..	15,000..	18,750..	18,750..	18,750..	18,750..	105,000..	—
CO-OPERATIVES, MARKETING, &C.									
Construction of buildings for canning Plant	259..	254..	5..	— ..	— ..	— ..	— ..	259..	—
Construction of GPS Stores at Batticaloa and Polonnaruwa. ..	550..	50..	500..	— ..	— ..	— ..	— ..	550..	—
Milk Scheme :									
(a) Establishment of milk collecting centres with pasterizing and refrigerating facilities†	1,600..	200..	200..	400..	400..	400..	— ..	1,600..	—

* Includes Rs. 90 million financed from the Rubber Cess.

† Includes Rs. 400,000 financed from Food Production (Estates Fund).

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MINISTRY OF AGRICULTURE AND FOOD—(contd.)

Schedule of New Projects—(contd.)

SCHEDULE B—(contd.)

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
(*b*) Shifting of Colombo City Cattle to dairy colonies at Narahenpitiya and Welisara *	1,300..	200..	200..	250..	250..	200..	200..	1,300..	—
(*c*) Milk Sterilisation Plant †	1,500..	300..	300..	200..	200..	250..	250..	1,500	—
(*d*) Establishment of improved processing and distributing facilities in principal urban areas ‡	800..	100..	100..	200..	200..	200..	— ..	800..	—
Egg Marketing Scheme—stepping up local production &c. ..	50..	— ..	— ..	20..	20..	10..	— ..	50..	—
Increased canning and processing	200..	— ..	50..	50..	50..	50..	— ..	200..	—
Rice Milling/Boiling facilities mechanical bran sifting and artificial drying equipment	1,500..	— ..	200..	300..	300..	350..	350..	1,500..	—
Kitchen and Bakery, Marketing depot improvements to buildings and equipment	1,000..	— ..	— ..	700..	300..	— ..	— ..	1,000..	
Marketing Department Transport branch shifting of buildings, equipment, &c.	800..	— ..	— ..	— ..	200..	300..	300..	800..	—
Buildings for Assistant Commissioners and marketing officers, Marketing Department	900..	— ..	— ..	100..	200..	300..	300..	900..	—
Buildings for marketing Department Establishments ..	900..	— ..	— ..	200..	300..	200..	200..	900..	—
Vegetable Marketing Scheme for purchase of produce at fair prices	360..	— ..	— ..	75..	85..	95..	105..	360..	—
Rebuilding of old Town Hall market	1,450..	— ..	— ..	— ..	450..	500..	500..	1,450..	—
Redesigning of Chatham Street Shop	175..	— ..	— ..	75..	100..	— ..	— ..	175..	—
Construction of Food Stores	407..	— ..	200..	207..	— ..	— ..	— ..	407..	—
Purchase of Transport for Food Commissioners Department	192..	— ..	192..	— ..	— ..	— ..	— ..	192..	—
Establishemnt of Food Research Institute	474..	— ..	— ..	250..	224..	— ..	— ..	474..	—
Quarters for Inspectors and Sub-Inspectors, Co-operative Department	2,400..	— ..	— ..	600..	600..	600..	600..	2,400..	—
Financing of Co-operative and Mortgage Banks ..	350..	— ..	— ..	50..	75..	100..	125..	350..	—

* Includes Rs. 600,000 financed from Food Production (Estates) Fund.
† Includes Rs. 650,000 financed from Food Production (Estates) Fund.
‡ Includes Rs. 350,000 financed from Food Production (Estates) Fund.

Schedule of New Projects—(contd.)

(Figures in Rs. '000)

Description of Projects	Total Estimated Cost	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
		1954-55	1955-56	1956-57	1957-58	1958-59	1959-60		
Co-operative Department, Financing of New Development Projects	750..	— ..	— ..	100..	200..	250..	200..	750..	—
Construction of administration and educational buildings for Co-operative Department at Headquarters and Outstations..	2,500..	— ..	— ..	500..	500..	750..	750..	2,500..	—
Total ..	151,240	16,414	17,766	31,392	28,775	28,766	28,127	151,240	—
Less :									
(*a*) Amount financed from Food Production (Estates) Fund for—									
(i) Establishment of Milk Collecting Centres with pasturizing and refrigerating facilities ..	400..	200..	200..	— ..	— ..	— ..	— ..	400..	—
(ii) Shifting of Colombo City Cattle to Dairy Colonies at Narahenpita and Welisara ..	600..	200..	200..	— ..	— ..	— ..	200..	600..	—
(iii) Milk Sterilisation Plant	650..	300..	300..	— ..	— ..	50 ..	— ..	650..	—
(iv) Establishment of improved processing and distributing facilities principal urban areas ..	350..	100..	100..	— ..	50 ..	100 ..	— ..	350..	—
(*b*) Amounts financed from Rubber Cess for—									
Rubber Rehabilitation Scheme	90,000..	15 000..	15,000..	15,000..	15,000..	15,000..	15,000..	90,000..	—
Net Total ..	59,240	614	1,966	16,392	13,725	13,616	12,927	59,240	—

MINISTRY OF AGRICULTURE AND FOOD—(contd.)

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	Expenditure incurred upto September 30, 1954, on Committed Projects	"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
				1954-55	1955-56	1956-57	1957-58	1958-59	1959-60		
Committed Projects ..	37,510	3,211 ..	34,299 ..	5,912 ..	5,266 ..	6,431 ..	5,609 ..	5,613 ..	5,468 ..	34,299 ..	—
New Projects ..	59,240 ..	— ..	59,240 ..	614 ..	1,966 ..	16,392 ..	13,725 ..	13,616 ..	12,927 ..	59,240 ..	—
Total ..	96,750	3,211	93,539	6,526	7,232	22,823	19,334	19,229	18,395	93,539	—

MINISTRY OF HEALTH

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
Construction of Central Dispensaries	4,000..	3,488..	512..	102..	250..	160..	— ..	— ..	— ..	512..	—
Construction of Maternity Homes	7,446..	5,573..	1,873..	650..	500..	500..	223..	— ..	— ..	1,873..	—
Construction of Rural Hospitals ..	6,650..	4,185..	2,465..	5..	5..	365..	350..	600..	600..	1,925..	540
Construction of Children's Hospital, Colombo	6,250..	954..	5,296..	300..	1,200..	1,500..	1,500..	796..	— ..	5,296..	—
Colombo North Hospital ..	3,250..	1,115..	2,135..	385..	750..	500..	500..	— ..	— ..	2,135..	—
New Hospital, Kalutara ..	1,000..	786..	214..	151..	60..	3..	— ..	— ..	— ..	214..	—
Negombo Hospital Extensions ..	600..	278..	322..	247..	75..	— ..	— ..	— ..	— ..	322..	—
Jaffna Hospital Extensions ..	1,880..	536..	1,344..	400..	600..	344..	— ..	— ..	— ..	1,344..	—
General Hospital Five-Storeyed Ward and Nurses' Amenities ..	5,298..	3,225..	2,073..	1,470..	570..	33..	— ..	— ..	— ..	2,073..	—
Ratnapura Hospital ..	8,000..	3,228..	4,772..	2,000..	1,250..	1,000..	522..	— ..	— ..	4,772..	—
District Hospital, Weligama ..	800..	661..	139..	128..	10..	1..	— ..	— ..	— ..	139..	—
Kandy Hospital X'Ray Block ..	4,585..	360..	4,225..	700..	750..	1,000..	1,000..	775..	— ..	4,225..	—
Mulleriyawa New Psychopathic Hospital and Extensions Pelawatta Mental Home ..	5,128..	1,005..	4,123..	850..	2,500..	773..	— ..	— ..	— ..	4,123..	—
Fye Hospital, Colombo ..	4 370..	2..	4,368..	500..	2,090..	1,750..	28..	— ..	— ..	4,368..	—
Ambalangoda Hospital Extensions	149..	67..	82..	58..	5..	19..	— ..	— ..	— ..	82..	—
Watupitiwela Hospital Extensions	126..	3..	123..	104..	10..	9..	— ..	— ..	— ..	123..	—
Mulhalkelle Hospital Extensions ..	295..	5..	290..	183..	70..	37..	— ..	— ..	— ..	290..	—
Buttala Hospital Extensions ..	488..	58..	430..	59..	165..	206..	— ..	— ..	— ..	430..	—
Kankesanturai Sanatorium Extensions	250..	130..	120..	35..	85..	— ..	— ..	— ..	— ..	120..	—
X'Ray Blocks Ragama, Kandana, Puttalam, Batticaloa, Kankesanturai and Negombo ..	415..	230..	185..	135..	49..	1..	— ..	— ..	— ..	185..	—
Additions and improvements Kegalle Hospital	189..	5..	184..	132..	8..	44..	— ..	— ..	— ..	184..	—
Kandana Chest Hospital (Water Supply)	53..	23..	30..	29..	1..	— ..	— ..	— ..	— ..	30..	—

MINISTRY OF HEALTH—(contd.)

Schedule of Committed Projects—(contd.)

SCHEDULE A—(contd.)

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Construction of Medical Buildings out of Prefabricated Materials ..	8,364..	1,654..	6,710..	4,000..	2,010..	700..	— ..	— ..	— ..	6,710..	—
Medical Facilities in Gal Oya Valley	1,629..	511..	1,118..	344..	674..	100..	— ..	— ..	— ..	1,118..	—
Welisara Chest Hospital Additional Kitchen	140..	114..	26..	21..	5..	— ..	— ..	— ..	— ..	26..	—
Kalutara Hospital X'Ray Block ..	87..	50..	37..	37..	— ..	— ..	— ..	— ..	— ..	37..	—
Isolation Ward, Nawalapitiya Hospital	34..	21..	13..	13..	— ..	— ..	— ..	— ..	— ..	13..	—
New I. D. H., Kandy ..	130..	113..	17..	16..	1..	— ..	— ..	— ..	— ..	17..	—
Quarters for Minor Staff, Nuwara Eliya	72..	42..	30..	30..	— ..	— ..	— ..	— ..	— ..	30..	—
Matale Hospital—New Kitchen and Store	79..	24..	55..	55..	— ..	— ..	— ..	— ..	— ..	55..	—
Two New Wards—Hiniduma Hospital	88..	33..	55..	55..	— ..	— ..	— ..	— ..	— ..	55..	—
Chest Hospital, Wirawila ..	110..	60..	50..	50..	— ..	— ..	— ..	— ..	— ..	50..	—
Maternity Ward, Hambantota Hospital	136..	119..	17..	17..	— ..	— ..	— ..	— ..	— ..	17..	—
Galle Hospital, X'Ray Block, NTS	3,390..	417..	2,973..	1,000..	1,000..	973..	— ..	— ..	— ..	2,973..	—
Dispensary, &c., Nadunkerni Maternity Home	61..	32..	29..	28..	1..	— ..	— ..	— ..	— ..	29..	—
Chavakachcheri Hosp.tal ..	100..	40..	60..	60..	— ..	— ..	— ..	— ..	— ..	60..	—
Central Dispensary and Apothecary's Quarters, Dambagolla ..	40..	35..	5..	5..	— ..	— ..	— ..	— ..	— ..	5..	—
Quarters, Maha Oya Hospital ..	120..	30..	90..	50..	40..	— ..	— ..	— ..	— ..	90..	—
Dispensary &c. Quarters, Nawattegama	58..	37..	21..	19..	2..	— ..	— ..	— ..	— ..	21..	—
New Maternity Ward, Nikaweratiya Hospital	90..	19..	71..	53..	2..	16..	— ..	— ..	— ..	71..	—
Maternity Ward, &c., Polonnaruwa Hospital	110..	63..	47..	46..	1..	— ..	— ..	— ..	— ..	47..	—
T. B. Wards, Kurunegala Hospital	305..	125..	180..	180..	— ..	— ..	— ..	— ..	— ..	180..	—
Chilaw Hospital, Ward for 24 Beds	85..	50..	35..	35..	— ..	— ..	— ..	— ..	— ..	35..	—

Schedule of Committed Projects—(contd.)

(Figures in Rs. '000)

Description of Project	Total Estimated Cost	Expenditure incurred up to September 30, 1954	"Carry-over" on October 1, 1954	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Twelve Quarters for Medical Officers	727..	190..	537..	537..	— ..	— ..	— ..	— ..	— ..	537..	—
X'Ray Blocks for District Hospital	468..	421..	47..	17..	1..	29..	— ..	— ..	— ..	47..	—
Dental Institute, Colombo, Extensions	180..	120..	60..	60..	— ..	— ..	— ..	— ..	— ..	60..	—
Civil Medical Stores Extensions ..	580..	289..	291..	41..	250..	— ..	— ..	— ..	— ..	291..	—
Sputum House, Chest Hospital, Ragama	16..	9..	7..	1..	3..	3..	— ..	— ..	— ..	7..	—
General Hospital, Colombo, 2 Additional Bath Rooms	28..	10..	18..	18..	— ..	— ..	— ..	— ..	— ..	18..	—
Talagolla Hospital roof, &c.. ..	30..	25..	5..	5..	— ..	— ..	— ..	— ..	— ..	5..	—
Udugama Hospital, Improvement ..	40..	35..	5..	5..	— ..	— ..	— ..	— ..	— ..	5..	—
Talawa Hospital Water Supply ..	23..	18..	5..	5..	— ..	— ..	— ..	— ..	— ..	5..	—
Galle Hospital, Extensions to Operating Theatre	25..	23..	2..	2..	— ..	— ..	— ..	— ..	— ..	2..	—
Balangoda Hospital Extensions ..	22..	16..	6..	6..	— ..	— ..	— ..	— ..	— ..	6..	—
Polonnaruwa Hospital Water Supply	28..	26..	2..	2..	— ..	— ..	— ..	— ..	— ..	2..	—
Minor Water Supply Scheme Medical Institutions ..	180..	143..	37..	17..	— ..	20..	— ..	— ..	— ..	37..	—
Additions and Improvements to Medical Buildings ..	325..	— ..	325..	325..	— ..	— ..	— ..	— ..	— ..	325..	—
Total ..	79,122	30,831	48,291	15,778	14,993	10,086	4,123	2,171	600	47,751	540

MINISTRY OF HEALTH—(contd.)
Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on Octobes 1, 1960*
Maharagama Cancer Institute	1,500	500	950	50	—	—	—	1,500	—
Castle Street Maternity Hospital Extensions	875	249	625	1	—	—	—	875	—
Central Dispensary, &c., Kibissa	67	66	1	—	—	—	—	67	—
Jaffna Hospital X'Ray Block	310	110	200	—	—	—	—	310	—
Expansion and Improvements to Hospitals	1,350	1,000	350	—	—	—	—	1,350	—
Badulla Hospital Extensions	1,025	150	600	275	—	—	—	1,025	—
Anuradhapura New Hospital	2,650	250	1,000	1,400	—	—	—	2,650	—
Colombo South Hospital	3,500	—	750	1,500	1,250	—	—	3,500	—
General Hospital, Colombo, Extensions	5,000	—	—	750	1,500	1,500	1,250	5,000	—
Fever Hospital, Angoda, Extensions	1,000	—	—	500	500	—	—	1,000	—
Leprosy Campaign Extensions—Hospitals at Urugaha, Hendala and Mantivu	1,000	—	250	250	250	250	—	1,000	—
Kurunegala Hospital Extensions	1,000	—	500	500	—	—	—	1,000	—
Galle Hospital Extensions	500	—	—	—	—	250	250	500	—
Batticaloa Hospital Improvements	1,000	—	400	400	200	—	—	1,000	—
Castle Street Maternity Home (Stage II)	1,100	—	—	400	700	—	—	1,100	—
Kegalla New Hospital	2,500	—	460	750	750	540	—	2,500	—
Avissawella New Hospital (Stage I)	2,480	—	250	300	400	750	780	2,480	—
Matara Hospital Extensions	500	—	—	—	—	250	250	500	—
Trincomalee Hospital Extensions	600	—	—	—	—	300	300	600	—
Nawalapitiya Hospital Extensions	600	—	—	—	—	300	300	600	—
Polgahawela Hospital Extensions	600	—	—	—	—	300	300	600	—
Deltota Hospital Extensions	500	—	—	250	250	—	—	500	—
Bandarawela Hospital (Stage I)	200	—	—	100	100	—	—	200	—

Schedule of New Projects—(contd.)

(Figures in Rs. '000)

Description of Project	Total Estimated Cost	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Construction of Medical Buildings out of prefabricated materials	12,603	—	1,990	4,000	4,000	2,613	—	12,603	—
Expansion and Improvements to Base and District Hospital (Stage I)	6,000	—	1,150	1,500	1,500	1,500	350	6,000	—
Water Supply Schemes to Hospitals (Stage I)	6,000	—	1,000	1,500	1,500	1,500	500	6,000	—
Electricity Supply Schemes to Hospitals (Stage I)	2,400	—	500	500	500	500	400	2,400	—
M. R. I. Extensions (Stage I)	500	—	—	—	—	250	250	500	—
Central Public Health Laboratory	580	—	—	—	250	250	80	580	—
Insect Borne Diseases Control and Environmental Sanitation (Stage I)	1,800	—	400	500	500	400	—	1,800	—
Jaffna Fever Hospital	500	—	—	—	—	250	250	500	—
Organisation and Health Education (Stage I)	500	—	—	200	200	100	—	500	—
Training Schemes for Public Health Personnel (Stage I)	500	—	—	250	250	—	—	500	—
Medical Buildings for Gal Oya Valley	1,000	—	100	300	300	300	—	1,000	—
Indigenous Medical Research Section of the M. R. I.	150	—	150	—	—	—	—	150	—
Additions and Improvements to College of Indigenous Medicine	500	—	250	250	—	—	—	500	—
Additions and Improvements, Hospital of Indigenous Medicine (Stage I)	1,000	—	200	500	300	—	—	1,000	—
Pilot Pharmacy for manufacture of Medicine	500	—	150	150	200	—	—	500	—
Central Laundry for Colombo Hospitals	500	—	—	—	—	250	250	500	—
Extensions to De Soysa Maternity Hospital	1,000	—	—	—	—	500	500	1,000	—
Equipment*	4,655	1,755	2,900	—	—	—	—	4,655	—
Total	70,545	4,080	15,126	17,076	15,400	12,853	6,010	70,545	—

* The cost of equipment for individual projects is contained in estimated total cost as stated for each project and no separate provision after 1955–56 for equipment is therefore made.

MINISTRY OF HEALTH—(contd.)

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	*Expenditure incurred upto September 30, 1954, on Committed Projects*	*"Carry-over" on October 1, 1954, on Committed Projects and Total Estimated cost of New Projects*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed Projects ..	79,122..	30,831..	48,291..	15,778..	14,993..	10,086..	4,123..	2,171..	600..	47,751..	540
New Projects	70,545..	— ..	70,545..	4,080..	15,126..	17,076..	15,400..	12,853..	6,010..	70,545..	—
Total ..	149,667	30,831	118,836	19, 858	30,119	27,162	19,523	15,024	6,610	118,296	540

MINISTRY OF HEALTH—(contd.)

Supplementary Schedule

SCHEDULE D

(Figures in Rs. '000)

Description of Projects	*Estimated Total Cost*
General Hospital, Colombo, Extensions to O. P. D. and Path. Lab. (Second Stage) ..	1,500
Central Laundry for Colombo Hospitals and T. B. Institutions	500
De Soyza Maternity Hospital, Rebuilding Scheme	3,000
Avissawella new Hospital, (Second Stage)	2,000
Bandarawela new Hospital, (Second Stage)	800
Construction of Medical Buildings out of pre-fab. building material, (Second Stage)	9,000
Extensions and improvements to District and Base Hospitals, (Second Stage) ..	6,000
Water Supply Scheme to Hospitals, (Second Stage)	6,000
Electricity Supply Scheme to Hospitals, (Second Stage)	2,400
Extensions to M. R. I., (Second Stage)	2,000
Insect borne diseases control and environmental sanitation, (Second Stage) ..	3,800
Central Workshops	200
Organisation and Health Education, (Second Stage)	1,000
Training Scheme for Public Health personnel, (Second Stage)	1,500
Additions and improvements to the College of Indigenous Medicine (Second Stage)	425
Additions and improvements to the Hospital of Indigenous Medicine (Second Stage)	595
Buildings and equipment for free dispensaries, (Second Stage)	2,000

MINISTRY OF LOCAL GOVERNMENT

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
Anuradhapura Preservation Scheme	9,319..	2,440..	6,879..	1,809..	4,735..	335..	— ..	— ..	— ..	6,879..	—
Colombo Special Areas Development Board	20,000..	9,000..	11,000..	2,000..	2,000..	1,000..	— ..	— ..	— ..	5,000..	6,000
Rural Water Schemes ..	3,000..	— ..	3,000..	450..	550..	500..	500..	500..	500..	3,000..	—
Grants-in-Aid—Village Works ..	21,000..	— ..	21,000..	3,400..	3,500..	3,500..	3,500..	3,500..	3,600..	21,000..	—
Grants-in-Aid—Village Wells ..	3,000..	— ..	3,000..	500..	500..	500..	500..	500..	500..	3,000..	—
Grants for Slum Clearance ..	6,000..	— ..	6,000..	835..	1,165..	1,000..	1,000..	1,000..	1,000..	6,000..	—
Loans for Slum Clearance † ..	1,850..	— ..	1,850..	275..	375..	300..	300..	300..	300..	1,850..	—
Grants for Drainage Schemes ..	2,700..	— ..	2,700..	455..	500..	500..	500..	500..	245..	2,700..	—
Loans for Drainage Schemes † ..	1,350..	— ..	1,350..	— ..	250..	250..	250..	250..	350..	1,350..	—
Major Housing Schemes ..	2,000..	— ..	2,000..	1,000..	1,000..	— ..	— ..	— ..	— ..	2,000..	—
Kalatuwawa Headworks and Pipe Line : ..											
(*a*) Government Contribution ..	19,537..	4,250..	15,287..	3,612..	2,875..	8,800..	— ..	— ..	— ..	15,287..	—
(*b*) Loan to Municipality for L. A. Share †	21,658..	— ..	21,658..	— ..	21,658..	— ..	— ..	— ..	— ..	21,658..	—
Water Supply Schemes ‡ ..	3,848..	1,205..	2,643..	1,050..	1,051..	542..	— ..	— ..	— ..	2,643..	—
Loans to Electricity Distribution †	6,000..	— ..	6,000..	1,000..	1,000..	1,000..	1,000..	1,000..	1,000..	6,000..	—
Loan for Miscellaneous Capital Works †	3,000..	— ..	3,000..	250..	250..	250..	250..	250..	250..	1,500..	1,500
Total ..	124,262	16,895	107,367	16,636	41,409	18,477	7,800	7,800	7,745	99,867	7,500

† Loans from the Local Loans and Development Fund.
‡ Details in Appendix I.

WATER SUPPLY SCHEMES

Schedule of Committed Projects

SCHEDULE A

APPENDIX I

(Figures in Rs. 000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Tangalle	537..	22..	515..	225..	290..	— ..	— ..	— ..	— ..	515..	—
Urban	1,950..	837..	1,113..	513..	600..	— ..	— ..	— ..	— ..	1,113..	—
Ragama (2 items)	125..	33..	92..	37..	55..	— ..	— ..	— ..	— ..	92..	—
Vavuniya	89..	— ..	89..	39..	50..	— ..	— ..	— ..	— ..	89..	—
Batticaloa	175..	49..	126..	71..	55..	— ..	— ..	— ..	— ..	126..	—
Minor Schemes (L. F. E.) ..	972..	264..	708..	165..	1..	542..	— ..	— ..	— ..	708..	—
Total ..	3,848	1,205	2,643	1,050	1,051	542	—	—	—	2,643	—

MINISTRY OF LOCAL GOVERNMENT—(contd.)

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Drainage Schemes*	5,000	—	—	1,000	1,250	1,250	1,500	5,000	—
Water Supply Schemes†	36,760	167	—	20 116	6,752	4,087	2,638	33,760	3,000
Sea Erosion Prevention Measures	4,500	—	—	1,500	1,000	1,000	1,000	4,500	—
Water Supply to Towns South of Colombo‡	23,240	—	500	12,492	3,248	—	—	16,240	7,000
Total	69,500	167	500	35,108	12,250	6,337	5,138	59,500	10,000

* Drainage Schemes for Matara, Panadura, Moratuwa, Wattala/Mabole.

† Water Supply Schemes for Negombo, Matara, Jaffna, Kandy, Puttalam, Galle, Weligama, &c.

‡ Water Supply Schemes for Kotte, Dehiwela-Mt. Lavinia, Moratuwa and Panadura.

SCHEDULE C

Summary Schedule of Committed and New Projects

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	Expenditure incurred upto September 30, 1954, on Committed Projects	"Carry-over" on October 1, 1954, on Committed Projects and Total Estimated cost of New Projects	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year plan	Estimated "carry-over" on October 1, 1960
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed Projects ..	124,262..	16,895..	107,367..	16,636..	41,409..	18,477..	7,800..	7,800..	7,745..	99,867..	7,500
New Projects	69,500..	— ..	69,500..	167..	500..	35,108..	12,250..	6,337..	5,138..	59,500..	10,000
Total ..	193,762	16,895	176,867	16,803	41,909	53,585	20,050	14,137	12,883	159,367	17,500

MINISTRY OF EDUCATION

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
Extensions and improvements to Training Colleges ..	6,405..	4,168..	2,237..	300..	600..	1,337..	— ..	— ..	— ..	2,237..	
Schools and Training Colleges :											
Construction of permanent buildings and additions and improvements to existing buildings ..	31,490..	25,266..	6,224..	5,250..	974..	— ..	— ..	— ..	— ..	6,224..	
Government Secondary and Junior Schools : Buildings for ..	48,000..	26,601..	21,399..	4,250..	3,500..	6,500..	4,000..	3,149..	— ..	21,399..	—
Junior Technical Schools ..	2,500..	60..	2,440..	1,280..	150..	250..	250..	250..	260..	2,440..	—
Administration Block, Faculty of Medicine, University of Ceylon	1,790..	1,042..	748..	500..	100..	148..	— ..	— ..	— ..	74..	—
Buildings for Pathology Department, Faculty of Medicine, University of Ceylon	435..	374..	61..	61..	— ..	— ..	— ..	— ..	— ..	61..	—
University Buildings, Peradeniya	83,000..	35,596..	47,404..	5,000..	8,000..	5,000..	5,000..	5,000..	5,000..	33,000..	14,404
Examinations Press	90..	29..	61..	61..	— ..	— ..	— ..	— ..	— ..	61..	—
Total ...	173,710	93,136	80,574	16,702..	13,324	13 235	9,250	8,399	5,260	66,170	14,404

Schedule of New Projects

(Figures in Rs. '000)

Description of Projects	Total Estimated Cost	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Technical Assistant's Office, Polgolla	250..	25..	75..	150..	— ..	— ..	— ..	250..	—
Construction of Schools Workshops	9,725..	1,150..	1,700..	1,775..	1,700..	1,700..	1,700..	9,725..	—
Quarters for Inspector of Watchers, Colombo Museum ..	9..	— ..	9..	— ..	— ..	— ..	— ..	9..	—
Office Building for Technical Education Branch ..	20..	— ..	20..	— ..	— ..	— ..	— ..	20..	—
Five Twin Cottages for labourers at Polonnaruwa ..	94..	— ..	94..	— ..	— ..	— ..	— ..	94..	—
Government College of Fine Arts, Carpentry Workshops, Store, &c.	30..	— ..	25..	5..	— ..	— ..	— ..	30..	—
Equipment for Schools and Training Colleges ..	18,040..	3,040..	3,000..	3,000..	3,000..	3,000..	3,000..	18,040..	—
Restoration of Mahasaya	1,347..	100..	624..	623..	— ..	— ..	— ..	1,347..	—
Institute of Practical Technology	4,145..	1,000..	1,500..	1,645..	— ..	— ..	— ..	4,145..	—
Trade Schools	1,983..	— ..	— ..	1,675..	308..	— ..	— ..	1,983..	—
Conservation of ancient monuments	2,250..	— ..	— ..	562..	562..	563..	563..	2,250..	—
Repository for Government Archives	1.700..	— ..	7..	493..	500..	700..	— ..	1,700..	—
North Wing, Colombo Museum	1,075..	— ..	— ..	350..	350..	200..	175..	1,075..	—
Confidential Room, Examinations Press	99..	— ..	75..	24..	— ..	— ..	— ..	99..	—
Extensions and improvements to Training Colleges ..	2.404..	— ..	— ..	313..	1,000..	550..	541..	2,404..	—
Schools and Training Colleges :									
Construction of permanent buildings and additions and improvements to existing buildings	27,676..	— ..	2,776..	8,650..	6,000..	6,000..	4,250..	27,676..	—
Goverment Secondary and Junior Schools, buildings for ..	2 851..	— ..	— ..	— ..	— ..	851..	2,000..	2 851..	—
Acquisition of lands	5,300..	1,300..	650..	825..	825..	825..	875..	5,300..	—
Total ..	78,998	6,615	10,555	20,090	14,245	14,389	13,104	78,998	—

MINISTRY OF EDUCATION.—(contd.)

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	*Expenditure incurred upto September 30, 1954, on Committed Projects*	*"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimatep "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed Projects ..	173,710..	93,136..	80,574..	16,702.	13,324..	13,235..	9,250..	8,399..	5,260..	66,170..	14,404
New Projects	78,998..	— ..	78,998..	6,615..	10,555..	20,090..	14,245..	14,389..	13,104..	78,998..	—
Total ..	252,708	93,136	159,572	23,317	23,879	33,325	23,495	22,788	18,364	145,168	14,404

MINISTRY OF LABOUR

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
Measures for increasing employment	24,000...	— ...	24,000...	4,000...	4,000...	4,000...	4,000...	4,000...	4,000...	24,000...	—
Total ...	24,000	—	24,000	4,000	4,000	4,000	4,000	4,000	4,000	24,000	—

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
Laboratory for Labour Medical Officer and X'Ray Unit ...	73...	— ...	65...	— ...	— ...	8...	— ...	73...	—
Office Buildings—Avissawella ...	53	— ...	20...	33...	— ...	— ...	— ...	53...	—
Head Office, Colombo ...	750...	— ...	— ...	375...	375...	— ...	— ...	750...	—
Office Buildings Hatton ...	70...	— ...	— ...	70...	— ...	— ...	— ...	70...	—
Do. Badulla ...	72...	— ...	— ...	— ...	72...	— ...	— ...	72...	—
Do. C.E.E. Colombo ...	350...	— ...	— ...	— ...	— ...	350...	— ...	350...	—
Do. Jaffna ...	102...	— ...	— ...	— ...	— ...	102...	— ...	102...	—
Do. U. R. .W. ...	105...	— ...	— ...	— ...	— ...	— ...	105...	105...	—
Do. Kurunegala ...	77...	— ...	— ...	— ...	— ...	— ...	77...	77...	—
Do. Kalutara ...	79...	— ...	— ...	— ...	— ...	— ...	79...	79...	—
Do. Kegalle ...	36...	— ...	— ...	— ...	— ...	— ...	36...	36...	—
Do. Batticaloa ...	70...	— ...	— ...	— ...	— ...	— ...	70...	70...	—
Do. Galle ...	82...	— ...	— ...	— ...	— ...	— ...	82...	82...	—
Do. Matugama ...	50...	— ...	— ...	— ...	— ...	— ...	50...	50...	—
Total ...	1,969	—	85	478	447	460	499	1,969	—

MINISTRY OF LABOUR—(contd.)

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	*Expenditure incurred upto September 30, 1954, on Committed Projects*	*"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed projects ...	24,000...	— ...	24 000...	4,000...	4,000...	4,000...	4,000...	4,000...	4,000...	24,000...	—
New Projects	1,969...	— ...	1,969...	— ...	85...	478...	447...	460...	499...	1,969...	—
Total ...	25,969	— ...	25,969	4,000	4,085	4,478	4,447	4,460	4,499	25,969	—

MINISTRY OF COMMERCE, TRADE AND FISHERIES

Schedule of Committed Projects

SCHEDULE

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Purchase and establishment of Ice and refrigeration plants ..	1,091..	901..	190..	150..	40..	— ..	— ..	— ..	— ..	190..	—
Construction of Fishery harbours and ancillary works ..	270..	113..	157..	37..	3..	30..	30..	30..	27..	157..	—
Construction of fishery roads ..	1,648*..	57..	1.591..	319..	325..	300..	247..	200..	200..	1,591..	—
Fisheries development ..	300..	— ..	300..	45..	65..	50..	50..	50..	40..	300..	—
Coastal Navigation Aids ..	145..	— ..	145..	20..	25..	25..	25..	25..	25..	145..	—
Acquisition of beaching grounds ..	275..	— ..	275..	25..	11..	62..	62..	62..	53..	275..	—
Loans to fishing industry ..	2,200..	— ..	2,200..	300..	300..	300..	300..	500..	500..	2,200..	—
Total ..	5,929	1.071	4,858	896	769	767	714	867	845	4,858	—

* Includes annual grant of Rs. 200,000 for Fishery Roads made to local authorities.

MINISTRY OF COMMERCE, TRADE AND FISHERIES.—(contd.)

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Establishment of Fisheries By-product Factory Machine Shop	1,154..	954..	200..	— ..	— ..	— ..	— ..	1,154..	—
Establishment of Cold Storage Plant	1,250..	250..	1,000..	— ..	— ..	— ..	— ..	1,250..	—
National Shipping Line	1,000..	1,000..	— ..	— ..	— ..	— ..	— ..	1,000..	—
Board of Management, Cold Storage Plant	500..	— ..	— ..	500..	— ..	— ..	— ..	500..	—
Tourist Development (Improvements to Rest Houses, &c.) ..	7,876..	— ..	360..	2,500..	2,016..	2,000..	1,000..	7,876..	—
Tourist Publicity	4,500..	— ..	500..	1,000..	1,000..	1,000..	1,000..	4,500..	—
Fisheries development	200..	— ..	— ..	50..	50..	50..	50..	200..	—
Fishery Roads—amplifications of existing programme ..	*2,004..	168..	300..	325..	361..	425..	425..	2,004..	—
Fishery Harbours—amplifications of existing programme ..	343..	— ..	7..	80..	80..	83..	93..	343..	—
Accommodation for staff (Fisheries)	750..	— ..	150..	150..	150..	150..	150..	750..	—
Housing for Fishermen	6,000..	— ..	1,250..	1,500..	1,500..	1,250..	500..	6,000..	—
Total ..	25,577	2,372	3,767	6,105	5,157	4,958	3,218	25,577	—

* Includes additional annual grant of Rs. 300,000 for Fishery Roads made to local authorities.

SCHEDULE C

Summary Schedule of Committed and New Projects

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	Expenditure incurred upto September 30, 1954, on Committed Projects	"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year Period	Estimated "carry-over" on October 1, 1960
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed Projects ..	5,929 ..	1,071 ..	4,858 ..	896 ..	769 ..	767 ..	714 ..	867 ..	845 ..	4,858 ..	—
New Projects	25,577 ..	— ..	25,577 ..	2,372 ..	3 767 ..	6,105 ..	5,157 ..	4,958 ..	3,218 ..	25,577 ..	—
Total ..	31,506	1,071	30,435	3,268	4,536	6,872	5,871	5,825	4,063	30,435	—

MINISTRY OF INDUSTRIES, HOUSING AND SOCIAL SERVICES

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
INDUSTRIES											
Salt Industry : Buildings Improvements and mechanisation ..	3,254..	1,802..	1,452..	350..	550..	350..	202..	— ..	— ..	1,452..	—
Cement Factory	24,737..	22,091..	2,646..	884..	1,000..	762..	— ..	— ..	— ..	2,646..	—
Leather Factory (re-organization) ..	835..	553..	282..	207..	75..	— ..	— ..	— ..	— ..	282..	—
Vegetable Oil Factory ..	20,405..	10,955..	9,450..	3,223..	3,267..	2,960..	— ..	— ..	— ..	9,450..	—
Paper Factory	22,000..	16,740..	5,260..	3,260..	2,000..	— ..	— ..	— ..	— ..	5,260..	—
Ceramic Factory	2,640..	2,163..	477..	452..	25..	— ..	— ..	— ..	— ..	477..	—
DDT/Caustic Soda/Chloine Factory	13,737..	6,681..	7,056..	3,515..	1,500..	2,041..	— ..	— ..	— ..	7,056..	—
Department of Industries New Office Buildings, &c.	917..	898..	19..	19..	— ..	— ..	— ..	— ..	— ..	19..	—
Plywood Factory	1,987..	1,978..	9..	9..	— ..	— ..	— ..	— ..	— ..	9..	—
HOUSING *											
Bambalapitiya Housing Scheme ..	7,500..	1,000..	6,500..	4,000..	2,500..	— ..	— ..	— ..	— ..	6,500..	—
Kelaniya Housing Scheme	2,500..	369..	2,131..	1,000..	1,131..	— ..	— ..	— ..	— ..	2,131..	—
Gongitota Housing Scheme ..	4,800..	850..	3,650..	1,535..	2,115..	— ..	— ..	— ..	— ..	3,650..	—
SOCIAL SERVICES											
Home for the Aged and Infirm ..	6,990..	1,635..	5,355..	201..	257..	924..	1,010..	1,010..	1,010..	4,412..	943
Building of sheltered workshops for Deaf and Blind	514..	185..	329..	79..	250..	— ..	— ..	— ..	— ..	329..	—
Total ..	112,516	67,900	44,616	18,734	14,670	7,037	1,212	1,010	1,010	43,673	943

* Expenditures on housing include outlays from loans raised under the National Housing Act.

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
INDUSTRIES									
Ceylon Institute of Industrial and Scientific Research	5,000..	1,000..	1,000 ..	1,000..	1,000..	1,000..	— ..	5,000..	—
Second Kiln for Cement Factory	9,200..	— ..	500 ..	7,700..	1,000..	— ..	— ..	9,200..	—
Extensions to Plywood, Leather and Ceramic Factories ..	5,000..	— ..	— ..	2,000..	1,000..	1,000..	1,000..	5,000..	—
Assistance to Small Scale Industries	10,000..	150..	600*..	3,000..	2,000..	2,000..	2,050..	9,800..	200
Government participation in Large Scale Industries ..	25,000..	—	600*..	8,000..	7,900..	4,500..	4,000..	25,000..	—
HOUSING †									
Housing Schemes in Kandy	5,000..	1,000	4,000..	— ..	— ..	— ..	— ..	5,000..	—
Housing Schemes in Colombo Suburbs	18,500..	1,500..	9,000..	8,000..	— ..	— ..	— ..	18,500..	—
Colombo City : Emergency Housing	1,200..	1,000..	200..	— ..	— ..	— ..	— ..	1,200..	—
Building Societies : Loans to	13,000..	265..	1,261..	2,700..	2,500..	3,000..	2,274..	12,000..	1,000
Estate Bazaar Areas : Housing Schemes	600..	100..	500..	— ..	— ..	— ..	— ..	600..	—
Colombo City : Basic Flats	10,000..	1,500..	1,700..	3,300..	1,500..	1,000..	1,000..	10,000..	—
Horana Housing Scheme	500..	100..	400..	— ..	— ..	— ..	— ..	500..	—
Loans to House Builders	26,700..	10,000..	10,000..	4,000..	2,700..	— ..	— ..	26,700..	—
SOCIAL SERVICES									
House of Detention and Home for Vagrants ..	1,250..	— ..	500..	500..	250..	— ..	— ..	1,250..	—
Total ..	130,950	16,615	30,261	40,200	19,850	12,500	10,324	129,750	1,200

* The total debits in 1955–56 on account of both these projects together not to exceed Rs. 1,200,000.

† Expenditures on housing include outlays from loans raised under the National Housing Act.

MINISTRY OF INDUSTRIES, HOUSING AND SOCIAL SERVICES—(contd.)

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	Expenditure incurred upto September 30, 1954, on Committed Projects	"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed projects ..	112,516..	67,900..	44,616..	18,734..	14,670..	7,037..	1,212..	1,010..	1,010..	43,673..	943
New Projects	130,950..	— ..	130,950..	16,615..	30,261..	40,200..	19,850..	12,500..	10,324..	129,750..	1,200
Total ..	243,466	67,900	175,566	35,349	44,931	47,237	21,062	13,510	11,334	173,423	2,143

Supplementary Schedule

SCHEDULE D

(Figures in Rs. '000)

Description of Projects	*Estimated Total Cost*
National Provident Fund	4,040
State Homes for Children	12,000
Sheltered Workshops for Deaf and Blind (Extension)	246

MINISTRY OF POSTS AND BROADCASTING

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Development of Telecommunication Services	24,289...	20,148...	4,141...	4,141...	— ...	— ...	— ...	— ...	— ...	4,141...	—
Postal buildings	3,411...	2,408...	1,003...	334...	430...	239...	— ...	— ...	— ...	1,003...	—
Overseas Telecommunication Development	2,142...	941...	1,201...	134...	535...	532...	— ...	— ...	— ...	1,201...	—
Buildings, Commercial Service ...	300...	250...	50...	45...	5...	— ...	— ...	— ...	— ...	50...	—
New Auto-Exchange buildings, Galle	120...	28...	92...	87...	5...	— ...	— ...	— ...	— ...	92...	—
Broadcasting Station, improvements	2,540...	2,480...	60...	60...	— ...	— ...	— ...	— ...	— ...	60...	—
Post Office Savings Bank, extensions	32...	31...	1...	1...	— ...	— ...	— ...	— ...	— ...	1...	—
M. O. Department, Colombo, Additional Wing	45...	40...	5...	5...	— ...	— ...	— ...	— ...	— ...	5...	—
Telecommunication Stores and Workshop, renovation ...	29...	28...	1...	1...	— ...	— ...	— ...	— ...	— ...	1...	
Avissawella Post Office, additions ...	15...	13...	2...	2...	— ...	— ...	— ...	— ...	— ...	2...	—
Kandy Post Office, garages ...	16...	15...	1...	1...	— ...	— ...	— ...	— ...	— ...	1...	—
Minor Additions and improvements to Post Offices	300...	— ...	300...	300...	— ...	— ...	— ...	— ...	— ...	300...	—
Total ...	33,239	26,382	6,857	5,111	975	771	— ...	— ...	— ...	6,857	—

MINISTRY OF POSTS AND BROADCASTING—(contd.)

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
M. O. Department extensions (Stage II)	40...	23...	3...	14...	— ...	— ...	— ...	40...	—
Irrigation Workshop premises for Stores. (Stages II and III) ...	52...	52...	— ...	— ...	— ...	— ...	— ...	52...	—
P. and T. Workshops-extracter fans	15...	13...	2...	— ...	— ...	— ...	— ...	15...	—
P. and T. Stores-barbed wire fence	8...	8...	— ...	— ...	— ...	— ...	— ...	8...	—
Colombo Telephone Exchange and Associated Telephone Network:									
(*a*) C. T. O. Buildings	5,000...	— ...	— ...	2,500...	2,500...	— ...	— ...	5,000...	—
(*b*) Trunks and junctions	6,000...	— ...	500...	1,000...	1,026...	1,974...	1,500...	6,000...	—
(*c*) Colombo Trunk Manual and Auto Exchanges ...	20,000...	— ...	— ...	— ...	— ...	1,650...	18,350...	20,000...	—
(*d*) Underground cables	2,200...	— ...	650...	500...	500...	500...	50...	2,200...	—
(*e*) Telephones to subscribers	2,500...	— ...	500...	400...	600...	500...	500...	2,500...	—
Mail Sorting Office	3,000...	— ...	— ...	500...	1,000...	1,500...	— ...	3,000...	—
Outstation Telephone Exchanges and Equipment : ...									
(*a*) Trunks and junctions	5,576...	— ...	— ...	1,750...	1,250...	1,250...	1,326...	5,576...	—
(*b*) Telephones to subscribers	1,615...	— ...	200...	215...	400...	400...	400...	1,615...	—
(*c*) Underground Cables	1,350...	— ...	350...	500...	500...	— ...	— ...	1,350...	—
(*d*) Provincial Exchanges	3,300...	— ...	— ...	878...	700...	760...	962...	3,300...	—
(*e*) Telecommunication Buildings	3,160...	— ...	— ...	1,100...	600...	870...	590...	3,160...	—
Telecommunication Workshop	1,000...	— ...	— ...	500...	500...	— ...	— ...	1,000...	—
Equipment for training school and loboratory ...	204...	— ...	50...	154...	— ...	— ...	— ...	204...	—
Postal Buildings	3,758...	— ...	287...	654...	796...	877...	1,144...	3,758...	—
Telephone faclities to Government Establishments ...	2,729...	— ...	500...	590...	545...	545...	549...	2,729...	—
Overseas Telecommunication Service	500...	— ...	— ...	125...	125...	125...	125...	500...	—
Replacement of receivers, Broadcasting	3,500...	— ...	— ...	1,500...	2,000...	— ...	— ...	3,500...	—
Meteorological Department Buildings and Works ...	485...	— ...	93...	215...	140...	37...	— ...	485...	—
Meteorological Department Equipment	514...	— ...	— ...	130...	130...	130...	124...	515...	—
Total ...	66,506	96	3,135	13,225	13,312	11,118	25,620	66,506	—

SCHEDULE C

Summary schedule of Committed and New Projects

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	Expenditure incurred upto September 30, 1954, on Committed Projects	"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed Projects ...	33,239...	26,382...	6,857...	5,111...	975...	771...	— ...	— ...	— ...	6,857...	—
New Projects	66,506...	— ...	66,506...	96...	3,135...	13,225...	13,312...	11,118...	25,620...	66,506...	—
Total ...	99,745	26,382	73,363	5,207	4,110	13,996	13,312	11,118	25,620	73,363	—

MINISTRY OF POSTS AND BROADCASTING—(*Contd.*)

Supplementary Schedule

SCHEDULE D

(Figures in Rs. '000)

Description of Projects	*Estimated Total Cost*
Postal and Telecommunication Stores	2,550
Telecommunication Workshop (Continuation)	224
Taking over private up-country exchanges	2,000
Telephone call boxes in Colombo and Outstations	346
Modernizing Telegraphic Equipment	166
Modernizing Radio Equipment	506
Radio Telephone Equipment	305
Overseas Telecommunication Service (Continuation)	205
Broadcasting Department :—	
(i) Replacement of transmitters	419
(ii) Regional medium wave station, Kandy	464
(iii) Accommodation at Ekala	220
(iv) Expansion of Radio Ceylon premises	700
Equipment for Meteorological Department	568

MINISTRY OF TRANSPORT AND WORKS

Summary Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

	Total Estimated Cost	Expenditure incurred up to September 30, 1954	"Carry-over" on October 1, 1954	Estimated Phasing of Expenditure						Estimated Expenditure in Six Year Period	Estimated "carry-over" on October 1, 1960
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Public Works	142,282..	26,329..	115,953..	14,049..	18,335..	18,906..	14,057..	12,200..	11,166..	88,713..	27,240
Railway	128,251..	50,180..	78,071..	21,028..	12,550..	25,421..	10,609..	4,473..	3,229..	77,310..	761
Electrical	215,644..	59,914..	155,730..	41,383..	45,775..	42,563..	26,009..	— ..	— ..	155,730..	—
Ports and Harbours ..	111,374..	64,917..	46,457..	25,119..	19,754..	1,584..	— ..	— ..	— ..	46,457..	—
Civil Aviation ..	6,303..	1,474..	4,829..	600..	655..	840..	840..	825..	819..	4,579..	250
	603,854	202,814	401,040	102,179	97,069	89,314	51,515	17,498	15,214	372,789	28,251

Summary Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

	Total Estimated Cost	Estimated Phasing of Expenditure						Estimated Expenditure in Six Year Period	Estimated "carry-over" on October 1, 1960
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Public Works	57,641..	493..	2,740..	5,728..	4,685..	3,530..	2,651..	19,827..	37,814
Railway	66,730..	976..	9,450..	15,394..	14,750..	13,575..	12,585..	66 730..	—
Electrical	72,370..	4,500..	3,020..	5,900..	9,600..	13,210..	17,040..	53,270..	19,100
Ports and Harbours	41,526..	1,346..	6,193..	20,772..	10,012..	3,057..	146..	41,526..	—
Civil Aviation	16,926..	473..	1,431..	5,022..	2,700..	2,450..	2,050..	14,126..	2,800
	255,193	7,783	22,834	52,816	41,747	35,822	34,472	195,479	59,714

MINISTRY OF TRANSPORT AND WORKS.—(contd.)

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000

	Total Estimated cost of Committed and New Projects	*Expenditure incurred upto September 30, 1954, on Committed Projects*	*"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six Year Period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Public Works	199,923..	26,329..	173,594..	14,542..	21 075..	24,634..	18,742..	15,730	13,817..	108,540..	65,054
Railway	194,981..	50,180..	144,801..	22,004..	22,000..	40,815..	25,359..	18,048..	15,814..	144,040..	761
Electrical	288,014..	59,914..	228,100..	45,883..	48,795..	48,463..	35,609..	13 210 ..	17,040..	209,000..	19,100
Ports and Harbours ..	152,900..	64,917..	87,983..	26,465..	25,947..	22,356..	10,012..	3,057..	146..	87,983..	—
Civil Aviation	23,229..	1,474..	21,755..	1,073..	2,086..	5,862..	3,540..	3,275..	2,869..	18,705..	3,050
	859,047	202,814	656,233	109,967	119,903	142,130	93,262	53,320	49,686	568,268	87,965

MINISTRY OF TRANSPORT AND WORKS (PUBLIC WORKS)

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six Year Period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Pooneriyn-Marichchukadai Road	1,600..	1,481..	119..	99..	20..	— ..	— ..	— ..	— ..	119..	—
Velanai Pungudutivu Causeway ..	700..	609..	91..	20..	— ..	71..	— ..	— ..	— ..	91..	—
Independence Memorial ..	3,025..	1,661..	1,364..	414..	850..	100..	— ..	— ..	— ..	1,364..	—
Badureliya Kalawana Road ..	120..	105..	15..	— ..	1..	14..	— ..	— ..	— ..	15..	—
Salaries and allowances of Engineers, &c., on major construction works, P. W. D.	1,709..	1,112..	597..	260..	337..	— ..	— ..	— ..	— ..	597..	—
Puttalam-Marichchukuddai Road Improvements	709..	85..	624..	45..	100..	150..	175..	154..	— ..	624..	—
D. R. C., P. R. C. Roads ..	50,000..	11,244..	38,756..	4,256..	5,000..	5,000..	3,500..	3,000..	3,144..	23,900..	14,856
New Kelani Bridge ..	10,000..	1,299..	8,701..	2,201..	4,000..	2,500..	— ..	— ..	— ..	8,701..	—
Plant and vehicles, P. W. D. ..	17,000..	322..	16,678..	678..	1,250..	1,500..	1,500..	1,250..	1,000..	7,178..	9,500
Colombo-Galle Road 9¼-11½ ..	5,221..	1,960..	3,261..	140..	500..	900..	750..	650..	321..	3 261..	—
Parsons Road Bridge ..	450..	107..	343..	293..	20..	30..	— ..	— ..	— ..	343..	—
P. W. D. Advance Account Stores, Ratmalana	175..	158..	17..	16..	1..	— ..	— ..	— ..	— ..	17..	—
Quarters for E. E., P. W. D., Nalanda	77..	72..	5..	5..	— ..	— ..	— ..	— ..	— ..	5..	—
New Office Garage, Smithy, &c., P. W. D., Matale ..	75..	62..	13..	13..	— ..	— ..	— ..	— ..	— ..	13..	—
Extension to boundary wall, Government Factory	60..	55..	5..	5..	— ..	— ..	— ..	— ..	— ..	5..	—
Causeway cum Bridge, Munnakkarai	865..	840..	25..	25..	— ..	— ..	— ..	— ..	— ..	25..	—
Bridge over Kaluganga, Naragalla..	592..	134..	458..	258..	200..	— ..	— ..	— ..	— ..	458..	—
Bridges, causeways and roads, Talahena Palata, Negombo ..	674..	138..	536..	132..	150..	150..	104..	— ..	— ..	536..	—
Weragantota Bridge over Mahaweli Dumbara Valley-Alutnuwara Road	2,893..	339..	2,554..	221..	250..	1,500..	583..	— ..	— ..	2,554..	—

MINISTRY OF TRANSPORT AND WORKS (PUBLIC WORKS)—(contd.)

Schedule of Committed Projects—contd.

SCHEDULE A—contd.

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six Year Period*	*Estimated "carry-over" on October 1, 1960*
Overhead Bridge, 3rd Cross, Ambalangoda	217..	197..	20..	20..	— ..	— ..	— ..	— ..	— ..	20..	—
Khribathmuna Bridge ..	262..	248..	14..	13..	1..	— ..	— ..	— ..	— ..	14..	—
Bridge at Atumale Ferry ..	513..	468..	45..	35..	10..	— ..	— ..	— ..	— ..	45..	—
Bridge at Avithawa ..	377..	327..	50..	50..	— ..	— ..	— ..	— ..	— ..	50..	—
Thondaimannar Bridge ..	478..	175..	303..	125..	150..	28..	— ..	— ..	— ..	303..	—
Causeway at Arugam Bay on Batticaloa-Panama Road ..	137..	51..	86..	46..	40..	— ..	— ..	— ..	— ..	86..	—
Constructing bridges in place of 7 causeways Pottuvil-Siyambalanduwa Road	250..	28..	222..	97..	75..	50..	— ..	— ..	— ..	222..	—
Bridge at Padiruppu Ferry ..	525..	139..	386..	141..	100..	100..	45..	— ..	— ..	386..	—
Mawanella-Hemattagama-Gampola Road	434..	244..	190..	55..	75..	60..	— ..	— ..	— ..	190..	—
Dankluwa-Pagoda Road ..	2,500..	151..	2,349..	49..	150..	500..	550..	550..	550..	2,349..	—
Uraniya-Alutnuwara Road ..	505..	490..	15..	15..	— ..	— ..	— ..	— ..	— ..	15..	—
Nildandahinna-Uda Pussellawa Road	2,500..	188..	2,312..	72..	100..	500..	550..	550..	540..	2,312..	—
Lower Badulla Road ..	11,000..	234..	10,766..	336..	200..	1,500..	2,200..	2,046..	1,600..	7,882..	2,884
Widening of Mahawila Junction on Panadure-Nambapana Road ..	11..	4..	7..	3..	4..	— ..	— ..	— ..	— ..	7..	—
Roundabout at Eye Hospital Junction	20..	12..	8..	8..	— ..	— ..	— ..	— ..	— ..	8..	—
Palugama-Boralanda-Haputale Road improvements	388..	260..	128..	88..	40..	— ..	— ..	— ..	— ..	128..	—
Replacing mile stones by standard type	25..	15..	10..	10..	— ..	— ..	— ..	— ..	— ..	10..	—
Internal telephone system, P. W. D. Headquarters	25..	21..	4..	4..	— ..	— ..	— ..	— ..	— ..	4..	—

Schedule of Committed Projects—(contd.)

(Figures in Rs. '000)

Description of Project	Total Estimated Cost	Expenditure incurred up to September 30, 1954	"Carry-over" on October 1, 1954	Estimated Phasing of Expenditure						Estimated Expenditure in Six Year Period	Estimated "carry-over" on October 1, 1960
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Retaining wall along southern bank, Bolgoda Canal, Wellawatta ..	470..	106..	364..	46..	75..	143..	100..	— ..	— ..	364..	—
Additional transformer, &c., Government Factory	75..	7..	68..	35..	10..	23..	— ..	— ..	— ..	68..	—
Purchase of Motor Launch for Kayts Delft Service	200..	131..	69..	19..	50..	— ..	— ..	— ..	— ..	69..	—
Poonagala-Meenagala Road ..	850..	228..	622..	— ..	50..	150..	150..	150..	122..	622..	—
P. W. D. labourers' Cottages and Overseers' Quarters ..	750..	— ..	750..	75..	100..	150..	140..	140..	145..	750..	—
Additions and improvements to P. W. D.	900..	— ..	900..	75..	150..	165..	170..	170..	170..	900..	—
Strengthening, improving and renewing bridges, &c. ..	9,500..	— ..	9,500..	2,150..	2,300..	1,300..	1,250..	1,250..	1,250..	9,500..	—
Widening and improving trunk and main roads	5,500..	— ..	5,500..	500..	1,000..	1,000..	1,000..	1,000..	1,000..	5,500..	—
Traffic flow improvements ..	450..	— ..	450..	18..	50..	95..	95..	95..	97..	450..	—
Side drains	300..	— ..	300..	13..	25..	65..	65..	65..	67..	300..	—
Flood damages	4,500..	— ..	4,500..	550..	600..	830..	830..	830..	860..	4,500..	—
Ferry boats and canoes ..	900..	— ..	900..	150..	150..	150..	150..	150..	150..	900..	—
Preliminary investigations of roads, buildings, &c. (P. W. D.) ..	900..	— ..	900..	150..	150..	150..	150..	150..	150..	900..	—
Basic Technical Training Institute	875..	822..	53..	20..	1..	32..	— ..	— ..	— ..	53..	—
	142,282	26,329	115,953	14,049	18,335	18,906	14,057	12,200	11,166	88,713	27,240

MINISTRY OF TRANSPORT AND WORKS (PUBLIC WORKS)—(contd).

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six Year Period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Reconstruction of Gintota Bridge	2,500..	200..	250..	750..	750..	550..	— ..	2,500..	—
Construction of New Bridge and widening of Approaches at Ja-ela on Colombo-Negombo Road	1,550..	75..	250..	700..	525..	— ..	— ..	1,550..	—
New Office, Yard and Stores for C. E. Bridges, Ratmalana ..	403..	85..	200..	118..	— ..	— ..	— ..	403..	—
Re-roofing Machine and Fitting Shops, &c., Government Factory	47..	30..	17..	— ..	— ..	— ..	— ..	47..	—
Reinforced Concrete Foot Bridge over Menikganga at Katara-gama	92..	57..	35..	— ..	— ..	— ..	— ..	92..	—
Temporary Additional Accommodation, Jaffna Kachcheri ..	34..	27..	1..	6..	— ..	— ..	— ..	34..	—
Construction of part of Gampaha Road deviation cum Bridge over Nanu Oya, &c.	1,050..	— ..	150..	400..	300..	200..	— ..	1,050..	—
Construction of a Stand-by Power Plant, Ratmalana ..	4..	4..	— ..	— ..	— ..	— ..	— ..	4..	—
Re-roofing Carpentry Workshop, &c., Government Factory ..	23..	15..	8..	— ..	— ..	— ..	— ..	23..	—
Quarters for Engine Driver and Cleaner, Waterworks, Talai-mannar	14..	— ..	12..	2..	— ..	— ..	— ..	14..	—
Quarters for Technical Assistant, E. E's Office, Koslanda ..	30..	— ..	20..	10..	— ..	— ..	— ..	30..	—
Fitting Shop, Light Trades Workshop, &c., Government Factory	1,200..	— ..	150..	600..	400..	50..	— ..	1,200..	—
New Office for C. M. T.	825..	— ..	300..	500..	25..	— ..	— ..	825..	—
Construction of roads recommended by Kandyan Peasantry Commission	1,500..	— ..	1,000..	500..	— ..	— ..	— ..	1,500..	—
Quarters for Clerks, E. E's Office, Mahadankadawala ..	54..	— ..	40..	14..	— ..	— ..	— ..	54..	—
Office, Store, Workshop Quarters, &c., E. E., Anuradhapura ..	375..	— ..	75..	275..	25..	— ..	— ..	375..	—
Improvements to Water Supply to Government Bungalows A. B. C. D. Type, Colombo	42..	— ..	32..	10..	— ..	— ..	— ..	42..	—
Erection of Cycle Sheds, Government Factory ..	19..	— ..	15..	4..	— ..	— ..	— ..	19..	—

Schedule of New Projects—(contd.)

(Figures in Rs. '000)

Description of Projects	Total Estimated Cost	Estimated Phasing of Expenditure						Estimated Expenditure in Six Year Period	Estimated "carry-over" on October 1, 1960
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Extensions to E. E's Office, Chilaw	11..	— ..	10..	1..	— ..	— ..	— ..	11..	—
Replacing sett tracks on Sutherland Road (Darley Road), Colombo	43..	— ..	35..	8..	— ..	— ..	— ..	43..	—
Strengthening of weak bridges and construction of new bridges to promote irrigation and agricultural schemes* ..	4,375..	— ..	— ..	750..	750..	750..	801..	3,051..	1,324
Closing gaps between causeways in Jaffna District ..	2,500..	— ..	140..	430..	300..	130..	— ..	1,000..	1,500
By-passes through important towns	3,000..	— ..	— ..	— ..	300..	400..	400..	1,100..	1,900
Colombo South By-pass	14,250..	— ..	— ..	— ..	200..	200..	200..	600..	13,650
Widening of Skinners Road, South	3,000..	— ..	— ..	100..	300..	300..	300..	1,000..	2,000
Alutnuwara-Paditiyalawa Road	4,500..	— ..	— ..	150..	260..	250..	250..	910..	3,590
Inland Route, Batticaloa-Trincomalee	15,000..	— ..	— ..	100..	250..	400..	400..	1,150..	13,850
Minor items (unspecified)	1,200..	— ..	— ..	300..	300..	300..	300..	1,200..	—
Total ..	57,641	493	2,740	5,728	4,685	3,530	2,651	19,827	37,814

* Vide Appendix I.

MINISTRY OF TRANSPORT AND WORKS (PUBLIC WORKS).—(contd.)

Schedule of New Projects

SCHEDULE B—contd.

APPENDIX I

The works referred to will be taken up on the following routes :—

(*a*) Colombo-Puttalam-Anuradhapura Road.

(*b*) Anuradhapura-Habarana Road.

(*c*) Anuradhapura-Kilinochchi Road.

(*d*) Habarana-Minneriya Road.

(*e*) Dam ulla-Nalanda Road.

(*f*) Kurunegala-Puttalam Road.

(*g*) Colombo-Hambantota-Wellawaya-Kalmunai Road.

(*h*) Karaitivu-Inginiyagala Road.

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	*Expenditure incurred upto September 30, 1954, on Committed Projects*	*"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six Year Period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed projects ..	142,282..	26,329..	115,953..	14,049..	18,335..	18,906..	14,057..	12,200..	11,166..	88,713..	27,240
New projects	57,641..	— ..	57,641..	493..	2,740..	5,728..	4,685..	3,530..	2,651..	19,827..	37,814
Total ..	199,923	26,329	173,594	14,542	21,075	24,634	18,742	15,730	13,817	108,540	65,054

MINISTRY OF TRANSPORT AND WORKS (RAILWAY)

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six Year Period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Strengthening and renewal of bridges and culverts ..	3,299..	2,849..	450..	450..	— ..	— ..	— ..	— ..	— ..	450..	—
New Metal Quarry, Galgamuwa ..	285..	190..	95..	50..	45..	— ..	— ..	— ..	— ..	95..	—
Improvements to Permanent Way, Coast Line	6,882..	4,637..	2,245..	200..	200..	300..	300..	300..	300..	1,600..	645
Strengthening of Permanent Way, B. T. L. R.	24,005..	7,476..	16,529..	3,000..	3,000..	3,000..	3,000..	2,500..	2,029..	16,529..	—
Housing Scheme for workers at Anuradhapura and Nawalapitiya	1,694..	873..	821..	30..	75..	150..	150..	150..	150..	705..	11
Mechanisation of minor tablet stations, &c.	250..	190..	60..	— ..	60..	— ..	— ..	— ..	— ..	60..	—
Enlargement Carriage Sidings, Maligawatte	838..	118..	720..	200..	150..	150..	220..	— ..	— ..	720..	—
Diesel Running Shed, Dematagoda	2,976..	— ..	2,976..	100..	750..	1,250..	876..	— ..	— ..	2,976..	—
Metal Quarry, Ambepussa ..	251..	— ..	251..	100..	150..	1..	— ..	— ..	— ..	251..	—
Carriages Building Shop, Ratmalana	1,700..	— ..	1,700..	— ..	750..	750..	200..	— ..	— ..	1,700..	—
Re-organisation of Signal Engineers' Workshop, &c.	320..	45..	275..	50..	71..	75..	79..	— ..	— ..	275..	—
Strengthening of bridges and re-organising of bridges branch, &c. ..	450..	68..	382..	75..	75..	100..	100..	32..	— ..	382..	—
Renewal of locomotives ..	18,949..	2,601..	16,348..	7,000..	10..	9,338..	— ..	— ..	— ..	16,348...	—
Fuel Oil Installations ..	200..	176..	24..	24..	— ..	— ..	— ..	— ..	— ..	24..	—
Renewal of Rolling Stock ..	34,096..	22,762..	11,334..	2,640..	3,750..	4,944..	— ..	— ..	— ..	11,334..	—
C. M. E's Department, renewal of plant and machinery ..	2,328..	1,084..	1,244..	140..	300..	300..	300..	204..	— ..	1,244..	—

Schedule of Committed Projects—(contd.)

(Figures in Rs. '000)

Description of Project	Total Estimated Cost	Expenditure incurred up to September 30, 1954	"Carry-over" on October 1, 1954	Estimated Phasing of Expenditure						Estimated Expenditure in Six Year Period	Estimated "carry-over" on October 1, 1960
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Diesel locomotives, purchases ..	3,300..	1..	3,299..	3,295..	3..	1..	— ..	— ..	— ..	3,299..	—
Renewal of road vehicles ..	130..	95..	35..	— ..	35..	— ..	— ..	— ..	— ..	35..	—
C. M. E's Department purchase of additional plant and machinery	1,520..	617..	903..	80..	425..	398..	— ..	— ..	— ..	903..	—
Electric lighting	1,072..	961..	111..	— ..	111..	— ..	— ..	— ..	— ..	111..	—
Improvements of working arrangements in stations &c. ..	575..	563..	12..	12..	— ..	— ..	— ..	— ..	— ..	12..	—
Renewal of boilers ..	8,500..	2,047..	6,453..	1,382..	2 057..	690..	1,500..	412..	412..	6,453..	—
Laying of pipeline to Dematagoda Running Shed	193..	82..	111..	45..	66..	— ..	— ..	— ..	— ..	111..	—
Additional rolling stock ..	10,969..	2,577..	8,392..	2,108..	— ..	3,150..	3,134..	— ..	— ..	8,392..	—
Additional weighing equipment ..	102..	95..	7..	7..	— ..	— ..	— ..	— ..	— ..	7..	—
Improvements to Train Lighting ..	3,200..	50..	3,150..	25..	412..	750..	750..	875..	338..	3,150..	—
Plant and machinery, Trains Department	86..	23..	63..	15..	19..	29..	— ..	— ..	— ..	63..	—
Conversion of tablet system Maho-Kekirawa	45..	— ..	45..	— ..	— ..	45..	— ..	— ..	— ..	45..	—
Ticket Printing Machines ..	36..	— ..	36..	— ..	36..	— ..	— ..	— ..	— ..	36..	—
	128,251	50,180	78,071	21,028	12,550	25,421	10,609	4,473	3,229	77,310	761

MINISTRY OF TRANSPORT AND WORKS (RAILWAY)—(contd.)

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six Year Period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Creosoting Plant to be installed by Forest Department and provision of tablet locked Railway Siding	*31..	31..	— ..	— ..	— ..	— ..	— ..	31..	—
Measures to improve train service and increase railway revenue(*a*)	5,500..	— ..	1,500..	1,500..	1,500..	1,000..	— ..	5,500..	—
Major improvements to Colombo area between Fort and Urugodawatte (*b*)	12,500..	— ..	2,000..	3,000..	2,500..	2,500..	2,500..	12,500..	—
Signalling alterations, Colombo Area, &c.	2,500..	— ..	250..	750..	750..	375..	375..	2,500..	—
Re-alignment of tracks to eliminate speed restrictions ..	2,000..	— ..	750..	500..	500..	250..	— ..	2,000..	—
Renewal and improvement of locomotives and rail-cars ..	17,500..	— ..	1,101..	5,000..	4,000..	4,000..	3,399..	17,500..	—
Renewal and improvement of rolling stocks	11,755..	— ..	— ..	2,000..	3,000..	3,000..	3,755..	11,755..	—
Plant and Machinery, C. M. E's Department	500..	— ..	10..	150..	150..	100..	90..	500..	—
Housing Scheme for Railway Staff	2,382..	— ..	— ..	600..	600..	600..	582..	2,382..	—
New proposals Way and Works Department ..	2,733..	— ..	700..	533..	500..	500..	500..	2,733..	—
New Proposals, C. M. E's Department	1,384..	— ..	250..	250..	250..	250..	384..	1,384..	—
General Works (*c*)	7,945..	945..	2,889..	1,111..	1,000..	1,000..	1,000..	7,945..	—
Total ..	66,730	976	9,450	15,394	14,750	13,575	12,585	66,730	—

* The total estimated cost of this project is Rs. 62,000. Half cost is borne on Votes of Forest Department.

(*a*) Vide Appendix I attached.

(*b*) Vide Appendix II attached.

(*c*) Vide Appendix III attached.

Schedule of New Projects

The measures envisaged are :—

	Rs.	Rs.
(a) Improvements to Maradana Station Yard :—		
(i) Permanent Way alterations	93,000	
(ii) Signalling alterations	260,000	
(iii) New footbridge and stairway	82,000	
		435,000
(b) Improvements to Maligawatta Yard entry and exit :—		
(i) Permanent Way alterations	34,000	
(ii) Signalling alterations	25,000	
		59,000
(c) Permanent Way alterations for improving conditions governing entry into Inward and Outward Goods Yards at Maradana		20,000
(d) Colour Light Signalling between Veyangoda and Panadure and improved signalling on other important sidings ..		3,436,000
(e) Converting the overhead transmission to underground system between Kalutara South and Galle		1,400,000
(f) Converting No. 6 Platform K. V. at Fort to combine Broad Gauge and Narrow Gauge		150,000
Total ..		5,500,000

MINISTRY OF TRANSPORT AND WORKS (RAILWAY)—(contd.)

SCHEDULE B—contd.

Schedule of New Projects

APPENDIX II

The total estimated cost of the scheme is Rs. 12,500,000 made up as follows :—

Description of Work	*Estimated Cost*
	Rs.
Restoring the triangle at Urugodawatta to provide direct access from the Port area towards Polgahawela, thus avoiding uneconomical train movements and eliminate congestion in Colombo area	500,000
Two additional sidings (connected with (*a*) at Bloemendhal Yard)	120,000
Further facilities required at Maho and Polgahawela for sorting wagons	180,000
Diversion of Main Line between Maradana and Urugodawatta to avoid bottleneck at Loco Junction and for providing overline bridge at Baseline Road	6,000,000
Two additional Broad Gauge Lines between Fort and Loco Junction and closure of the Kelani Valley Narrow Gauge Line ..	2,700,000
Provision of two additional platforms at Fort and two at Maradana	1,200,000
Two new overhead footbridges at Fort and Maradana Stations	300,000
Provision of loops and sidings on double line sections for accommodating passenger rakes	1,500 000
Total ..	12,500,000

General Works referred to include the following :—

1. Renewal of other structures directly affecting the safe carriage of traffic.
2. Renewal of surfaces of roads and areas in goods yards, workshops, &c.
3. Replacement of C. G. I. fencing with brick walling, &c.
4. Water supply to Bungalows and Workmen's Quarters.
5. Anti-flood, remedial and protective measures.
6. Level Crossing Protections.
7. Improvements to passenger accommodation and provision of amenities at stations and halts.
8. Re-modelling of stations.
9. Sanitary facilities for staff.
10. Additional buildings.
11. Renewal and improvement of buildings.
12. Train and rail car halts.
13. Augmentation and improvement of locomotive water supply systems.
14. Renewal of turntables.
15. Renewal and improvement of signalling equipment.
16. Plant and machinery, Way and Works Department.
17. Repairs, renewals and improvements to Engine and Ash Pits, &c.
18. Minor and special works.
19. Minor and special additional works.
20. Connecting gatehouses at level crossings to stations, &c.
21. Office machines and equipment.

MINISTRY OF TRANSPORT AND WORKS (RAILWAY).—(contd.)

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	*Expenditure incurred upto September 30, 1954, on Committed Projects*	*"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six Year Period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed projects ..	128,251..	50,180..	78,071..	21,028..	12,550..	25,421..	10,609	4,473..	3,229..	77,310..	76
New projects	66,730..	— ..	66,730..	976..	9,450..	15,394..	14,750..	13,575..	12,585..	66,730..	—
	194,981	50,180	144,801	22,004	22,000	40,815	25,359	18,048	15,814	144,040	761

MINISTRY OF TRANSPORT AND WORKS (ELECTRICAL)

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six Year Period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Hydro-Electric Scheme, Stage I ..	56,700..	54,280..	2,420..	1,500..	675..	245..	— ..	— ..	— ..	2,420..	—
Hydro-Electric Scheme, Stage II A—											
Foreign*	90,964..	— ..	90,964..	22,000..	32,000..	23.500..	13 464..	— ..	— ..	90,964..	—
Local	60,036..	2,991..	57,045..	15,000..	11,500..	18,000..	12,545..	— ..	— ..	57,045..	—
Spares for thermal plant ..	370..	— ..	370..	— ..	370..	— ..	— ..	— ..	— ..	370..	—
Spares for Hydro-Plant ..	275..	— ..	275..	100..	175..	— ..	— ..	— ..	— ..	275..	—
Spares for switch gear and transformer	600..	78..	522..	305..	217..	— ..	— ..	— ..	— ..	522..	—
Dematagoda Ela Retaining wall ..	40..	— ..	40..	— ..	40..	— ..	— ..	— ..	— ..	40..	—
Extensions to existing supply areas including augmentation of supplies	4,246..	1,415..	2,831..	1,831..	265..	735..	— ..	— ..	— ..	2,831..	—
Quarters, offices, stores, &c. ..	2,413..	1,150..	1,263..	647..	533..	83..	— ..	— ..	— ..	1,263..	—
	215,644	59,914	155,730	41,383	45,775	42,563	26,009	—	—	155,730	—

* Financed from I. B. R. D.

MINISTRY OF TRANSPORT AND WORKS (ELECTRICAL)

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Hydro Electric Scheme, Stage IIB and standby thermal plant	*94,800	4,500	—	500	20,200	24,100	25,600	74,900	19,900
Hydro Electric Scheme, Stage IIB Transmission	†44,350	—	—	—	11,900	12,400	14,650	38,950	5,400
Spares for thermal plant	700	—	200	200	300	—	—	700	—
Spares for Hydro Plant	350	—	—	—	—	350	—	350	—
Spares for Switch gear and transformers	400	—	—	200	—	—	200	400	—
Demataguda Ela Dredging, &c.	100	—	—	100	—	—	—	100	—
Dredging Norton Reservoir, and desilting surge chamber	120	—	20	—	100	—	—	120	—
Relay equipment for Laxapana Colombo Power Links	100	—	—	100	—	—	—	100	—
Workshops, Kolonnawa and Laxapana	150	—	—	150	—	—	—	150	—
Power Station Building renovation	200	—	—	—	200	—	—	200	—
Central Power Station, Jaffna	4,500	—	1,500	2,500	500	—	—	4,500	—
Extensions to existing supply areas including augmentation	10,000	—	760	1,000	1,000	1,000	1,490	5,250	4,750
Quarters, Offices, Stores &c.	2,000	—	290	550	300	260	—	1,400	600
Purchase of transport	950	—	—	100	100	100	100	400	550
Rural Electrification	4,250	—	250	500	500	500	500	2,250	2,000
	162,970	4,500	3,020	5,900	35,100	38,710	42,540	129,770	33,200
Less :—Foreign expenditure to be financed by loan :									
(*a*) Hydro Electric Scheme Stage IIB &c.	57,600	—	—	—	15,600	15,600	15,600	46,800	10,800
(*b*) Hydro Eelctric Scheme Stage IIB Transmission	33,000	—	—	—	9,900	9,900	9,900	29,700	3,300
	72,370	4,500	3,020	5,900	9,600	13,210	17,040	53,270	19,100

* It is proposed that foreign costs amounting to Rs. 57·6 million (of total estimated cost of Rs. 94·8 million) be obtained as a further loan from the I. B. R. D.

† It is proposed that foreign costs amounting to Rs. 33 million (of the total estimated cost of Rs. 44·35 million) be obtained as a further loan from the I. B. R. D.

MINISTRY OF TRANSPORT AND WORKS (ELECTRICAL)

Summary schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	*Expenditure incurred upto September 30, 1954, on Committed Projects*	*"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed Projects ..	215,644..	59,914..	155,730..	41,383..	45,775..	42,563..	26,009..	— ..	— ..	155,730..	—
New Projects	72,370..	— ..	72,370..	4,500..	3,020..	5,900..	9,600..	13,210..	17,040..	53,270..	19,100
	288,014	59,914	228,100	45,883	48,795	48,463	35,609	13,210	17,040	209,000	19,100

MINISTRY OF TRANSPORT AND WORKS (PORTS AND HARBOURS)

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure* 1954–55	1955–56	1956–57	1957–58	1958–59	1959–60	*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
Extra High Tension bulk supply for Colombo Port Commission ..	4,215..	802..	3,413..	1,100..	2,313..	— ..	— ..	— ..	— ..	3,413..	—
Dock pumps, motor and transformers	620..	47..	573..	— ..	573..	— ..	— ..	— ..	— ..	573..	—
Port Development Scheme ..	99,302..	60,002..	39,300..	23,270..	16,030..	— ..	— ..	— ..	— ..	39,300..	—
Deepening of lake in conjunction with new lock ..	450..	108..	342..	75..	75..	192..	— ..	— ..	— ..	342..	—
Diesel Repair Workshop ..	1,348..	710..	638..	400..	238..	— ..	— ..	— ..	— ..	638..	—
One 10 ton Digger * ..	550..	— ..	550..	— ..	525..	25..	— ..	— ..	— ..	550..	—
Two Tower Cranes * ..	500..	— ..	500..	— ..	— ..	500..	— ..	— ..	— ..	500..	—
Mechanical Coal handling equipment	1,534..	1,501..	33..	14..	— ..	19..	— ..	— ..	— ..	33..	—
Purchase of lighters, cranes and other equipment ..	1,950..	1,502..	448..	208..	— ..	240..	— ..	— ..	— ..	448..	—
Alterations of crane at North Side of Graving Dock, &c. ..	150..	106..	44..	36..	— ..	8..	— ..	— ..	— ..	44..	—
Two new oil fired boilers for steam tug Hercules*	600..	— ..	600..	— ..	— ..	600..	— ..	— ..	— ..	600..	—
14 in. Pump and Transformers, &c.	155..	139..	16..	16..	— ..	— ..	— ..	— ..	— ..	16..	—
	111,374	64,917	46,457	25,119	19,754	1,584	—	—	—	46,457	—

* Phasing of these items provisional on deliveries being made without undue delay.

MINISTRY OF TRANSPORT AND WORKS (PORTS & HARBOURS)

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Annual replacement and renewal of capital equipment for Port of Colombo and outports	14,279..	1,346..	3,477..	3141,..	3,112..	3,057..	146..	14,279..	—
2,000 ft. of 8 in. Discharge Pipe Line, &c.*	40..	— ..	40..	— ..	— ..	— ..	— ..	40..	—
One 20 ton Lockside Travelling Crane*	700..	— ..	— ..	700..	— ..	— ..	— ..	700..	—
One 7 ton Long Reach Steam Crane*	350..	— ..	— ..	350..	— ..	— ..	— ..	350..	—
Two small diesel tugs*	900..	— ..	— ..	900..	— ..	— ..	— ..	900..	—
100 Bilge blocks*	346..	— ..	346..	— ..	— ..	— ..	— ..	346..	—
Fendering to Guide Pier	220..	— ..	180..	40..	— ..	— ..	— ..	220..	—
Cost of Insurance and Freight on Canadian Aid Equipment ..	550..	— ..	300..	250..	— ..	— ..	— ..	550..	—
Galle and Trincomalee Harbours Surveys	250..	— ..	— ..	250..	— ..	— ..	— ..	250..	—
Port Development Scheme (continued)	7,641..	— ..	— ..	7,641..	— ..	— ..	— ..	7,641..	—
Admiralty Destroyer Dock	3,250..	— ..	— ..	2,000..	1,250..	— ..	— ..	3,250..	—
Mechanical Handling equipment	4,000..	— ..	— ..	2,000..	2,000..	— ..	— ..	4,000..	—
Kankesanturai harbour	4,350..	— ..	†850..	1,500..	2,000..	— ..	— ..	4,350..	—
Galle Harbour	4,650..	— ..	†1,000..	2,000..	1,650..	— ..	— ..	4,650..	—
	41,526	1,346	6,193	20,772	10,012	3,057	146	41,526	—

* Phasing of these items provisional on deliveries being made without undue delay.

† Token provision included in Estimates, 1955-56.

MINISTRY OF TRANSPORT AND WORKS (PORTS AND HARBOURS)

Summary schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	Expenditure incurred upto September 30, 1954, on Committed Projects	"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects	Estimated Phasing of Expenditure						Estimated Expenditure in Six-Year period	Estimated "carry-over" on October 1, 1960
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed projects ..	111,374..	64,917..	46,457..	25,119..	19,754..	1,584..	— ..	— ..	— ..	46,457..	—
New Projects	41,526..	— ..	41,526..	1,346..	6,193..	20,772..	10,012..	3,057..	146..	41,526..	—
	152,900	64,917	87,983	26,465	25,947	22,356	10,012	3,057	146	87,983	—

MINISTRY OF TRANSPORT AND WORKS (CIVIL AVIATION)

Schedule of Committed Projects

SCHEDULE A

(Figures in Rs. '000)

Description of Project	*Total Estimated Cost*	*Expenditure incurred up to September 30, 1954*	*"Carry-over" on October 1, 1954*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Improvements to Kankesanturai Aerodrome	429..	15..	414..	40..	140..	60..	60..	60..	54..	414..	—
Colombo Airport Improvement Scheme ..	5,619..	1,309..	4,310..	560..	500..	750..	750..	750..	750..	4,060..	250
Fees to Consulting Engineers in connection with development of Colombo Airport to International Standards	255..	150..	105..	— ..	15..	30..	30..	15..	15..	105..	—
	6,303	1,474	4,829	600	655	840	840	825	819	4,579	250

MINISTRY OF TRANSPORT AND WORKS (CIVIL AVIATION)

Schedule of New Projects

SCHEDULE B

(Figures in Rs. '000)

Description of Projects	*Total Estimated Cost*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
		1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Extensions to terminal Building, Ratmalana	525..	200..	325..	— ..	— ..	— ..	— ..	525..	—
Interim Water Supply Scheme for Airport	100..	— ..	— ..	100..	— ..	— ..	— ..	100..	—
Acquisitions of land for extensions to runway, Ratmalana Airport	500..	— ..	— ..	500..	— ..	— ..	— ..	500..	—
Extensions to existing runway and clearing of approaches	12,300..	— ..	— ..	3,000..	2,600..	2,150..	1,750	9,500..	2,800
Vehicles for Fire Brigades at Ratmalana and Kankesanturai Airports	649..	— ..	170..	479..	— ..	— ..	— ..	649..	—
Equipment for Communication System	773..	273..	100..	100..	100..	100..	100..	773..	—
Runway lighting and runway approach lighting, Ratmalana ..	774..	— ..	— ..	774..	— ..	— ..	— ..	774..	—
Renewals and additions of street lights, Ratmalana Airport Approach Road	42..	— ..	5..	37..	— ..	— ..	— ..	42..	—
Provision of two pumps for water supply, Ratmalana Airport	8..	— ..	8..	— ..	— ..	— ..	— ..	8..	—
Lighting of Signal base, Ratmalana Airport	2..	— ..	2..	— ..	— ..	— ..	— ..	2..	—
Flood lighting of Ratmalana Airport Signpost ..	3..	— ..	3..	— ..	— ..	— ..	— ..	3..	—
Major Water Supply and Sewage Scheme for Ratmalana Airport	400..	— ..	— ..	— ..	— ..	200..	200..	400..	—
Electric Supply to Radio Officers' Quarters, Talangama ..	5..	— ..	5..	— ..	— ..	— ..	— ..	5..	—
Purchase of Diesel Tractor for Ratmalana Airport ..	27..	— ..	— ..	27..	— ..	— ..	— ..	27..	—
Purchase of 24 in. Searchlight for Ratmalana Airport ..	13..	— ..	13..	— ..	— ..	— ..	— ..	13..	—
Security Fences around Talangama Radio Range ..	5..	— ..	— ..	5..	— ..	— ..	— ..	5..	—
Land acquisition for Radio Aids to Communication ..	800..	— ..	800..	— ..	— ..	— ..	— ..	800..	—
	16,926	473	1,431	5,022	2,700	2,450	2,050	14,126	2,800

MINISTRY OF TRANSPORT AND WORKS (CIVIL AVIATION)

Summary Schedule of Committed and New Projects

SCHEDULE C

(Figures in Rs. '000)

	Total Estimated cost of Committed and New Projects	*Expenditure incurred upto September 30, 1954, on Committed Projects*	*"Carry-over" on October 1, 1954, on Committed Projects and total Estimated cost of New Projects*	*Estimated Phasing of Expenditure*						*Estimated Expenditure in Six-Year period*	*Estimated "carry-over" on October 1, 1960*
				1954–55	1955–56	1956–57	1957–58	1958–59	1959–60		
Committed Projects ..	6,303..	1,474..	4,829..	600..	655..	840..	840..	825..	819..	4,579..	250
New Projects	16,926..	— ..	16,926..	473..	1,431..	5,022..	2,700..	2,450..	2,050..	14,126..	2,800
	23,229	1,474	21,755	1,073	2,086	5,862	3,540	3,275	2,869	18,705	3,050

MINISTRY OF TRANSPORT AND WORKS

Supplementary Schedule *SCHEDULE D*

(Figures in Rs. '000)

Description of Projects	*Estimated Total Cost*
Public Works :—	
Roads recommended by the Kandyan Peasantry Commission	23,799
Widening 1st Division Maradana, the section of the road from Technical College to Maradana Junction	1,500
Widening Darley Road	1,000
New Concrete Products Workshop, Ratmalana	350
Widening Colombo-Negombo Road	5,000
Office accommodation for Departments of Ministry of Transport and Works ..	6,000
Widening and Improving Medawachchiya-Kebitigolawa Road	650
Erection of Sign Boards	500
Widening Cotta Road (Borella Junction to Ayurvedic Hospital) ..	3,400
Widening of Ward Place from Borella Junction to about 600 feet ..	370
Construction of new road from Norris Road to Shorts Road with Overhead Bridge over Railway	5,250
Widening Main Street Colombo between York Street and Lotus Road ..	172
Road from Meegahakiula-Andaulpotte	2,000
Road from Karametiya-Alutnuwara	2,500
Approaches to connect the New Kelani Bridge with the Kandy and Negombo Roads	10,000
Deviation of Galle-Matara Road at Weligama	600
Improvements and construction of a road from Karandana-Bopekada via Wevilla and Udagama	256
Improvements to roads from Ayagama-Kalawana	220
Construction of Boramadula-Ekiriya-Bowela Road	400
Parallel Road to De Soysa Road, Moratuwa	800
Extension to Main Stores, Government Factory, Kolonnawa	180
New Sub-offices and quarters for Staff, P. W. D.	1,000
Widening of Colombo-Galle Road at Kalutara Town	2,425
Jetty and approach Road at Muttur	380
Additional Bridge at Peradeniya	1,500
New Bridge at Hanwella over the Kelani Ganga	1,500
Railway :—	
Improvement to Signalling System including replacement of Semaphore Signalling with Colour light Signalling in the Suburban areas	3,500
Duplication of the coast line from Panadura to Alutgama	12,500
New Central Railway Station, Colombo Fort	2,000
Railway Extension to Mintavur	16,000
Additional Permanent Way and Goods Yard facilities, Colombo area ..	6,000
Conversion of Kelani Valley Narrow Gauge line into Broad Gauge from Colombo to Avissawella ; Section from Colombo to Homagama to have duplicate lines ..	39,500
Relaying line from Bangadeniya to Puttalam	8,000
Remodelling of Railway Stations	15,000
Ports and Harbours :—	
Housing of C. P. C. Employees. (Continuation)	6,175
Civil Aviation :—	
Construction of Staff Quarters	4,000

PART THREE

Six-Year Programme—Spheres of Development

A—Economic Projects

B—Social Services

C—Administration and Defence

PART THREE

A—Economic Projects

CHAPTER 1

AGRICULTURE—INTRODUCTION

AGRICULTURE is the predominant activity in the country both by its contribution to National Output and by the employment it affords to the population. Agriculture as a whole contributed Rs. 2,414 million (54 per cent.) to the National Output in 1953. Again, of the total gainfully employed population in 1946, 51 per cent. were engaged in agriculture and forestry. The well-being of the economy depends, therefore, on the state of agriculture. This has been recognised in the present Six-Year Programme too, for of a total investment of Rs. 2,500 million agriculture and allied activities have been allotted Rs. 915 million (37 per cent.). This allocation has been divided among the different branches as follows :—

Six-Year Programme : Investment in the Agricultural Sector

	Amount (Rs. '000)	*Percentage of total Sector allocation*
Irrigation	374,907 ..	41
Land Development	223,326 ..	24
Assistance to peasant allottees including acquisition of the land for village expansion	93,554 ..	10
Forests	5,089 ..	1
Export Crops	166,329 ..	18
Improvements to non-export agriculture (i.e., extension, training, research) Co-operatives and Marketing ..	51,933 ..	6
Total ..	915,138	

Land Use

THE 1946 Census is the most recent source for data on actual land use. The total land area is 16.02 million acres ; this excludes large tanks and lagoons but includes rivers and small tanks. Of this amount 4.27 million acres were classified as cultivable land. The definition of cultivable land adopted was land that had been opened for cultivation at the time of

the Census. It therefore does not include unopened land which is potentially suitable for agriculture, which is the more usual meaning of cultivable land. To that extent the 4.27 million acres is an understatement. It has, in fact, been estimated that the undeveloped land suitable for future agricultural development is around 3.25 million acres. Of this amount about 2 million acres can be rendered irrigable.

The above figure, however, is only an estimate. No detailed survey of land use potential has as yet been undertaken. A complete Land Utilization Survey provides information on the present and potential uses of land and also indicates the kind of farming and the type of crop that would succeed best in each region. Such a survey is, of course, most invaluable to an agricultural country, especially where large areas of land awaiting development and settlement still exist. Negotiations have been completed, under the Colombo Plan, for an aerial survey of Ceylon. This would afford a basis for a full-scale land utilization survey and would greatly help the process of agricultural planning.

Of the 4.27 million acres that had been opened up for cultivation in 1946, 3.21 million acres were being actually cultivated whilst 1.06 million acres though opened up, were not being cultivated at that time. The 3.21 million acres were divided among the various crops as follows :—

Land Use Pattern

Product	*Acreage*	*Percentage of total cultivated area*
Tea	533,646	17
Rubber	574,522	18
Coconut	920,942	29
Paddy *a*	620,780	19
Chena	46,322	1
Other cultivation	204,508	6
Town and Village gardens *b*	309,381	10
Total	3,210,101	

(Source : Census of Agriculture, 1946)

a Acreage under cultivation in Maha 1945-46.
b A holding of one acre or less with any form of cultivation, usually forming the compound of a dwelling house.

A rough guide as to whether the expansion of agriculture in the extensive sense has kept pace with the growth in population is provided by the ratio of cultivated land to rural population. This criterion is, of course, insufficient, as on the one hand the productivity of the land (i.e., yield) could have increased or, on the other, empolyment in activities other than agriculture could have expanded, resulting in the rural population being less dependent on agriculture. Neither of these factors are accounted for in the cultivated area per head of the rural population shown below.

The Ratio of Cultivated Land to Rural Population

Year	*Cultivated area per head of the Rural Population (Acres)*
1891	.75
1901	.71
1911	.75
1921	.72
1931	.72
1946	.57
1950*	.54

The table above shows, perhaps somewhat crudely, that the cultivated area expanded to keep pace with the increase in rural population until 1931, but by 1946 the increase in the rural population was rapidly outstripping the opening of new land. Since there is a limit to the total cultivable area and to the amount of land that can be developed annually at an economic cost, continuing emphasis must be placed on raising the productivity of the land and on expanding the other sectors of the economy.

The Pattern of Agriculture

THE agriculture of the country is divided into two distinct sectors. On the one hand there is the sector, concentrated in the Wet Zone, which grows export crops. On the other hand there is the sector, located partly in the Wet Zone and, since the inception of colonization schemes, increasingly in the Dry Zone, devoted to the cultivation of food crops. There is a sound geographical justification for this pattern. The Wet Zone in relation to humidity, temperature and evenly spread rainfall, is climatically well-endowed for the growing of the export crops. Its area, however, is only

*Estimate.

about a third of the total land area. The Dry Zone on the other hand, which comprises the whole of the northern and eastern parts of the Island except for the hill area, is less favoured for agricultural pursuits. The rainfall is uncertain and is confined to one monsoon; temperatures are high; humidity is low; and soil erosion is a constant problem. All these combine to make agriculture in the Dry Zone a very hazardous occupation.

The Wet Zone is consequently densely populated and cultivated nearly to the hilt while the Dry Zone is sparsely populated and has large extents of land awaiting development and settlement. One of the auxiliary reasons for this sparse settlement has been the prevalence of malaria which till recently was endemic. Recent advances in malarial control, however, have made possible a land policy aimed at transferring population from the congested Wet Zone to the Dry Zone.

The Prospects of Development

IT is unlikely that there will be any large-scale extension to the area cultivated with export crops. The problem facing these products, except for tea, is largely one of replanting with high-yielding stock to enable them to maintain their competitive position in world trade. The immediately succeeding chapter details the Government's measures for assisting these industries to meet their difficulties. In the non-export sector, however, both an extension to the acreage is envisaged as well as improvements to the productivity of the land now being cultivated. These two aspects of agricultural development are discussed separately in individual chapters. One will discuss the past success, and the plans over the next six years for extending the margin of cultivation, while the other will be devoted to the proposed measures for raising the productivity of the cultivated land and, thereby, the incomes of peasant producers.

CHAPTER 2

THE AGRICULTURAL EXPORT SECTOR

THE three main exports of the country, all of them agricultural, are tea, rubber and coconut products. These three commodities, their local consumption included, constituted 36 per cent. of the National Income in 1953. In the same year, 95 per cent. of the total export earnings were derived from them. Their importance in our export-import economy is overwhelming since the imports on which the country is so dependent can be purchased only through their sale. Any reduction in the total earnings of these exports, due either to a price change or a fall in physical output, has an almost immediate repercussion on the entire economy and the standard of living.

Of the gainfully occupied population in 1946, 782,977 people (30 per cent.) were engaged in the growing of these crops. Furthermore, they afforded indirect employment to an additional number, as many of the ancillary services, such as transport, banking, insurance, &c., have grown up around them. Over half of the gainfully occupied population is directly or indirectly concerned with some branch of the export sector. These three industries really under-pin the entire economy. They must, therefore, be maintained in as efficient a state as possible to prevent any deterioration in their competitive position.

Tea

THE Tea Industry is the largest foreign exchange earner of the exports. Practically the entire output of the industry is exported and in 1954 earned the country as much as Rs. 1,124 million in foreign currency. This represented 66 per cent. of the value of the entire exports that year. Over 500,000 are employed on the tea plantations. Tea is a very labour intensive crop requiring almost one unit of labour for every acre.

The area under tea has increased very little in the last few years. The increase in 1952 and 1953 was 4,720 and 2,242 acres respectively. New planting probably varies directly with tea prices ; the area planted expanding when tea prices are attractive and vice-versa. A limit to the acreage, however, is set by the provisions of the International Tea Agreement.

Production since the war has shown a very definite upward trend.

Tea—Area, Production and Yield

Year	*Acreage*	*Production ('000 lb.)*	*Yield (lbs. per acre)*
1938	555,452	246,931	445
1948	555,083	298,791	538
1949	555,576	298,559	537
1950	561,031	306,215	546
1951	567,288	326,279	575
1952	572,008	316,842	554
1953	574,250	343,034	597
1954	575,504	366,738	637

(Source: Statistical Abstracts)

The yield per acre has risen from 445 lb. in 1938 to over 600 lb. in 1954. In spite of half a century of monoculture the fertility of the soil on the whole has been maintained through skilful management and wise investment. The need for large scale replanting does not face the industry just yet. The industry, however, should plan a replanting programme well ahead as a tea plant has only a definite period of economic productivity. The Tea Research Institute has evolved high yielding clones whose average yield is around 1,500 lb. per acre. At the same time the quality of the tea is in no way impaired. This is of considerable importance as Ceylon tea commands a quality premium.

The industry is usually thought to consist of large units. This is true to the extent that quite half the acreage is held by 347 units. But there are also 87,715 small-holdings with a total acreage of 69,781 acres. Many of these holdings are in a deplorable state. Much of the top soil has been washed away as no anti-erosion measures have been taken ; neither has regular and systematic manuring been carried out. This results in low yields and poor quality tea. The small-holder attempts to compensate for low yields by coarser plucking. This in turn causes the deterioration of the tea bush and low yields.

A well-organised extension service can do much to prevent the small-holdings falling into such a state. The small-holders are given advice by the extension service of the T.R.I. on the long run benefits of good soil management and finer plucking. But much of this work is neutralised by their low incomes. They cannot afford to purchase artificial manure or undertake other agricultural practices designed to maintain soil fertility. The Government has therefore allocated Rs. 3,250,000 to be given as grants and loans through Tea Producers' Co-operative Societies for the rehabilitation of the tea small-holdings. This money is to be used for pest control measures, anti-erosion work and manuring.

The size of these individual small-holdings does not justify the setting up of individual factories. They therefore sell their green leaf to certain factories which concentrate on the manufacture of bought leaf. Since the individual bargaining power of each small-holder is weak, complaints are made that these factories pay very low prices for the leaf. These factories, however, affirm that much of the leaf offered for sale to them is of such poor quality that only very low prices can be paid. Nevertheless, to minimize the exploitation of the small-holder the Government has assigned Rs. 1,000,000 over the six years for the establishment of tea collecting depots. The bulking of the green leaf of the individuual small-holders will act as a counter-vailing power to that exercised by the factory. These depots should also be able to improve standards of plucking by rejecting coarse leaf and paying fair prices for the better quality tea. This should be an incentive to the small-holders to indulge in finer plucking which will not only increase their income but also result ultimately in higher yields.

Rubber

RUBBER is the next important export crop. Ceylon is the third largest producer of natural rubber in the world. In 1954 it earned the country Rs. 285 million in foreign exchange or 17 per cent. of the value of exports. Rubber is a less labour intensive crop than tea. Employment on the rubber plantations was around 200,000 in 1951.

The area under rubber in 1953 was 657,427 acres. The acreage has increased only very gradually within the last few years. The rate of new planting quickens with an improvement in price. In 1952 during the Korean Boom 1,378 acres were planted, while in 1950 and 1951 only 117 and 276 acres respectively were planted.

Rubber—Area, Production and Yield

Year	*Acreage*	*Production ('000 lb.)*	*Yield (lbs. per acre)*
1938	604,111	113,120	187
1943	657,289	236,320	360
1948	655,108	200,480	306
1950	655,225	254,240	388
1951	655,501	235,200	359
1952	656,879	216,160	329
1953	657,427	220,886	336
1954	659,209	210,414	319

(Source : Statistical Abstracts)

The price of rubber is so volatile that it is impossible to forecast the probable price a few years ahead. New planting, therefore, assumes the appearance of a gigantic gamble. If owners in other producing countries behave in like fashion at the same time, the additional output could enter the market at a time of depressed prices, thereby depressing them still further.

It is impossible to compare present yields with pre-war yields as a quota scheme was in operation in 1938. The yield of 187 lb. per acre that year is largely understated as tapping was actually carried out only on a small part of the acreage under rubber. Even when the trees were being slaughter tapped in 1943 the yield per acre was only 360 lb. The post-war yield per acre has shown a declining trend and in 1954 was 319 lb. per acre.

This low yield per acre results in a high cost of production per lb. For, in general, the higher the yield per acre, the lower the cost per lb. If the rubber industry of Ceylon is to survive, it has to meet two threats. It has to compete with other natural rubber producing countries like Malaya where production costs are lower than here. At the same time natural rubber as a commodity has to compete with synthetic rubber. The synthetic rubber plants in the U. S. A. are to be sold to private parties in the very near future. The price may then rise a fraction above the 23½ cents (American) prevailing at present. Research, however, in the synthetic rubber industry is unremitting and the price will probably decline after a period. The rubber industry of Ceylon must therefore be prepared to meet this double challenge by producing its rubber both as efficiently and as cheaply as possible.

The Whitelaw Commission Report (1947) estimated that 175,000 acres of rubber were hopelessly uneconomic and needed immediate replanting. The Government therefore seized the opportunity offered by the five-year Rice-Rubber Pact with China, to establish a Rubber Replanting Subsidy Scheme. It was to be financed through a cess on the export of rubber. The cess was expected to yield an annual income of Rs. 12 million. This was sufficient to replant 13,000 acres of old rubber annually or approximately 65,000 acres over the five-year period (1953/57).

The scheme is, in essence, the payment of a subsidy to those owners of uneconomic rubber land, who are prepared to replant their lands with approved varieties of high-yielding rubber. The subsidy is graduated according to the size of the entire holding on which the replanting is to take place. If the area to be replanted forms part of an estate of 100 acres or above, the subsidy is Rs. 700 per acre replanted; if between 10 and 100 acres, the subsidy is Rs. 900 per acre replanted and if a small-holding, i.e., below 10 acres, the subsidy is Rs. 1,000 per acre. To ensure that the

replanted acreage is maintained satisfactorily, the subsidy is not paid all together, but is spread out over 4 instalments in the case of estates and 5 instalments in the case of small-holdings. The first instalment is paid as soon as the old rubber is uprooted, the second when the new plants have been planted, and the third and subsequent instalments are paid at yearly intervals provided the replanted area is well maintained. A large number of small-holders are participating in the Scheme. Fertilisers are distributed to them by the Rubber Control Department and the expanded staff of Rubber Instructors provide them with all the technical advice on replanting. The standard of replanting on small-holdings compares very favourably with that on estates.

In the first two years of the Scheme (1953 and 1954) 26,000 acres were replanted. The Government then decided to increase the rate of replanting. To finance this, a fixed cess on exports of crepe rubber was imposed. Previously the replanting cess on crepe rubber varied with its price in relation to sheet rubber. The fixed cess increased the income of the Fund to Rs. 15 million a year. An additional Rs. 10 million was transferred from the price Stabilisation Fund to the Replanting Subsidy Fund. The increased income of the Fund will enable 24,000 acres to be replanted in 1955. 50,000 acres will, therefore, be replanted in the first three years of the Scheme.

The Scheme was due to end by 1957. It has now been extended up to the end of 1960. The total amount set aside in the Six-Year Programme for this project is Rs. 105 million. Of this amount Rs. 90 million will be borne by the cess while Rs. 15 million at the rate of Rs. 3.75 million a year from 1956/57 will be from sources outside the cess. This will permit 20,000 acres to be replanted annually. At the end of the period 150,000 acres would have been replanted. When this area comes into bearing, Ceylon's annual rubber production will increase by 46,000 tons, about 50 per cent. of current production.

Coconut

THE third major crop of the Island is coconut products. In 1954 they brought the country Rs. 244 million in foreign exchange which was 14 per cent. of the total export receipts. Ceylon is the third largest exporter of copra and coconut oil, the Philippines and Indonesia taking first and second places respectively.

This industry differs from the other two both in its structure and also in its market. The tea and rubber industries are largely estate crops; coconut is predominantly a Ceylonese small-holders' crop. Small-holdings comprise 12 per cent. of the area under tea and 22 per cent. of the area planted with rubber; but 60 per cent. of the coconut acreage is cultivated

by small-holders. This estimate was made by the World Bank Mission as the Census (1946) figures did not give a breakdown sufficiently rigid to differentiate between small-holdings and the other categories. This estimate accords with one's visual impression that coconuts are largely owned by small-holders and cultivated by them as a cash crop in the rice-coconut complex. The second distinguishing feature is that the major markets for the other two products are situated abroad while coconuts are both consumed locally and sold abroad. The export value alone of coconut products does not demonstrate fully their importance in the economic structure of the country.

No annual estimates of the acreage or total production are available. Over a million acres are cultivated with coconuts. The usual method of calculating total production is to convert the exported quantities of coconut oil, desiccated coconut, and copra back into their nut equivalent by means of a fixed conversion ratio. To this is added a figure for local consumption. The latter is arrived at by imputing to the local population an average annual consumption figure obtained from the various family budget surveys. The underlying assumption for such a procedure is that the price elasticity of demand for local consumption is zero. In the absence of a more precise calculation this has to be adopted.

The following estimates of probable local production were given by the Coconut Commission :—

Estimated Coconut Production

Year	*Total Production (Million nuts)*
1938	1,926
1945	1,810
1946	1,638
1947	1,597
1948	2,002

(Source : Coconut Commission)

More recent estimates, based on the local consumption figure gathered from the Central Bank Consumer Finance Survey, suggest that the total production was—

2,570 million nuts in 1952
2,260 million nuts in 1953
2,130 million nuts in 1954

Due to the shortcomings in the available data it is not possible to prove that yields are declining. A further difficulty is that the yield is influenced to a considerable degree by the weather that prevailed 12 to 15 months before the coconuts are picked so that a variation in yield may be caused more by a change in the rainfall than by a permanent change in the productivity of the palms.

The economic life of the coconut palm is about sixty years. Over one-third of the palms now in production are said to have passed the sixty-year mark. The major problem facing the coconut producer is to replant this uneconomic acreage with high-yielding seedlings. Failure to do this will seriously affect not only the coconut industry but also the export earnings of the country. The annual increase in population creates an additional demand for about 25 million nuts. If export earnings are not to suffer, the industry must be able to meet this additional demand without any diminution in the quantity exported.

The Coconut Research Institute has received from the Government since 1948 an annual grant for the subsidized sale of seedlings from high-yielding palms. Although it costs one rupee to produce a seedling it is sold to the individual cultivator at 50 cents and to Co-operative Societies at 25 cents. In 1953 there were 15 Nurseries ; and 400,000 selected seedlings, equivalent to a plantable area of over 6,000 acres, were supplied to the public. The Government is planning to intensify work in this field as the maintenance of our already existing capital has the highest priority. In the development programme Rs. 4,750,000 has been set aside for this. The object is to provide sufficient seedlings to replant 15,000 acres annually.

In addition to the replanting of aged trees the Government intends to help in the rehabilitation of a large part of the acreage. A replanted holding requires about seven years to come into production while the benefits of rehabilitation are felt within a few years. The productivity of a holding could be raised considerably by (*a*) regular manuring ; (*b*) better soil husbandry ; and (*c*) better soil conservation and drainage. Once again the problem is to instruct the small-holder and also subsidize him if his income is too low.

The Coconut Research Institute does have a small-holders advisory service. Although the staff on the advisory service is small they succeed in disseminating a considerable amount of technical and practical information to small-holders through Co-operative and Rural Development Societies. The majority of small-holders cannot afford to undertake these measures for the rehabilitation of their holdings unless they are aided. The Government has allocated Rs. 9,000,000 over the six years for the sale of subsidized manure and Rs. 1,000,000 to be given as loans for soil conservation work.

CHAPTER 3

THE EXPANSION OF THE CULTIVATED AREA IN THE NON-EXPORT SECTOR

The Problem in its Historical Setting

UNTIL the inauguration of the Donoughmore Constitution, the agricultural policy of the Government was based on encouraging the growth of the plantations. These foreign-owned, foreign-managed enterprises, produced agricultural commodities for export. Since the capital was mainly British, it was only natural that these enterprises were favoured at that time. The economy as a whole, of course, benefited by their existence. The foreign trade increased. Government revenue rose. Ceylon became integrated into a world market economy. Hospitals, roads and schools were built. All these were the direct results of the plantations.

But the repercussion on the non-export peasant sector was not altogether favourable. The bulk of the plantations were located in the Central and Uva Provinces, where a settled agriculture was already flourishing. Paddy was grown in the valleys, while the upland areas were used for grazing and chena cultivation. The paddy holdings were owned individually while the highlands were the communal property of the village. The British, unmindful of this system of land tenure, promulgated a law (Ordinance No. 12 of 1840) by which all land was presumed to be Crown land, unless proof of ownership could be produced. No such proof could be adduced for the highlands of a village and most of it consequently devolved on the Crown. This land was then alienated to the foreign enterprises for the plantations. The villagers thus lost their highland, although paddy cultivation was still possible on the low-lying valleys.

The villages were thus hemmed in. Expansion was not possible as they were encircled by the plantations. This would not have been so disastrous if the labour in excess of the available land and capital resources of the village could have obtained employment on the plantations. But this too was denied the local population as Indian labour was imported for that work. Irregularity of attendance was the reason offered for not employing the villagers. This irregularity was caused by the villagers being members of an integrated social unit and therefore being obliged to help their fellow-villagers at certain peak periods of communal activity such as at

harvesting or sowing. Indian labour, however, had no such obligations and were, in addition, employable at lower wage rates. The plantations, in effect, absorbed the land but not the labour.

A process very similar to that outlined above occurred in the rest of the Wet Zone too. As the profitability of the plantations became apparent, land was alienated for their cultivation, wherever conditions were suitable. A few of the villagers in some areas found employment on the plantations, but the bulk of them were dependent for a living on cultivation on their own account. Once population began to increase, the peasants had insufficient land to extend the limits of cultivation.

Under such circumstances fragmentation of land was inevitable. The inheritance laws aided the growth of fragmentation as primogeniture is not the prevailing practice. The land is divided among all the heirs. Holdings are thereby split up into absurdly uneconomic units. According to the 1946 Census the 899,970 acres under paddy was distributed in 779,908 holdings. The median size of a holding was 0.78 acres. Fragmentation was worst in the areas with high densities of population. Fragmentation of ownership has also taken place. A single piece of land is owned by more than one owner and cultivated by each in rotation, i.e., Thattamaru system. Production standards are never very high as none of the owners is interested in improving the land.

As any extension to the cultivated area was limited, increasing population engendered increased pressure on the land resources. Unemployment and under-employment grew apace. Finally, there arose a new class of landless peasantry. Much of the labour in villages is really redundant in that the same output could be had with fewer people. If the other sectors of the economy were expanding, this excess labour could have obtained employment in those industries. But this did not occur. The plantations did not require them ; manufacturing industry was unknown. Even the village crafts were languishing because of the import of cheaper foreign goods. No escape from pauperization was therefore possible to the average villager.

The plantations did not produce food for local consumption. The peasants did not produce for a market. They were mainly subsistence farmers and depended very little on the world outside. Meanwhile, to feed the population, food was imported. No concerted attempt was made by the Government to encourage the peasant to produce a surplus for sale. The local rice-grower was really given no opportunity to improve his cultivation. His equipment was poor and outdated. No facilities for cheap credit were available. There was no extension service to advise him on the improvements he could introduce. His yields were naturally low and his production just sufficed for his needs. Rice was therefore imported from Burma and

elsewhere. The low import prices in turn discouraged increased local production. The country has ever since been a large importer of rice while the rice producing peasants carry on their cultivation in an inefficient way.

To summarise, all readily cultivable land in the Wet Zone has long been fully utilized. Thus the increasing population cannot extend the area of their cultivation. This has caused widespread rural under-employment and unemployment and also the growth of a landless peasantry. The food for the increased population was imported while the peasant has continued to be a subsistence farmer, producing no surplus for sale but just sufficient for his needs.

The Solution

THE Donoughmore Constitution ceded universal franchise and internal self-government to the people. The hitherto politically inarticulate peasantry were given the opportunity to voice their grievances and to make known their needs. With internal self-government the emphasis shifted from the export crops to the food crops and associated with it, the rehabilitation of the depressed villager. The programme had two prongs of action, each supplementing the other. On the one hand, the productivity and incomes on the existing holdings were to be raised through the introduction of more efficient methods of cultivation. On the other hand, land was to be provided to the landless by opening up new areas. This policy would not only provide new opportunities for life and work for an increasing population by resettling the unemployed and landless but also decrease our dependence on imported food by increasing the local supply.

Administratively too, these two lines of action are executed by different authorities. The Ministry of Agriculture and Food is responsible for the agricultural policy of improving the productivity of land already under cultivation, while the Ministry of Lands and Land Development is in charge of the land policy which seeks to enlarge the cultivable areas. Schematically, the work and development proposals of the Ministry of Land and Land Development will be considered first and those of the Ministry of Agriculture and Food later.

Land Policy

THE land policy of the Government has accordingly been directed towards the maximum utilization of the available land resources in a manner that would tend to increase our supplies of rice, increase employment opportunities, reduce the incidence of rural under-employment and relieve rural landlessness.

To achieve these ends, the Government has undertaken—

(1) The provision of irrigation facilities to land not provided with water before and the colonization of such areas with peasants from the more over-crowded areas, (2) alienation of Crown land near existing villages for village expansion, (3) the alienation of land to Middle-Class Ceylonese for speedier agricultural development.

LAND RESOURCES

The implementing of the policy outlined above is dependent on the availability of land resources. It has been estimated that 3.25 million acres are available for future agricultural expansion. Most of this is in the Dry Zone where the problem is one of winning the land back from the jungle.

What has so far been the obstacle in the development of the Dry Zone has been the lack of assured water facilities. The rainfall in the Dry Zone is either irregular or inadequate for the cultivation of crops requiring a high water duty. Where rainfall is irregular or inadequate, sub-soil water for primary and limited irrigation purposes would be of great value ; but a flooring of extensive ancient crystalline rock over the greater portion of this area augurs against the possibility of finding large underground water supplies. Exceptions do occur (e.g., in the Jaffna Peninsula and along the north-west coast) where the nature of the underlying rock permits accumulation of water, but apart from the larger or smaller fissures that contain local supplies, the ancient rocks are impermeable and cannot hold any appreciable volume. A mantle of variable depths of decayed rock and soil covers the ancient rocks, but the total amount of water this holds is negligible.

For purposes of future development, this geological structure is very important. It means that in the absence of sufficient and suitably distributed surface or underground water supplies, the reclamation of the Dry Zone will call for the provision of water.

Ceylon has substantial water resources that have not yet been fully utilized for irrigation. Rainfall is heavy, the average for the Island being 75 inches. Even in the Dry Zone, only a few places get less than 50 inches a year, though this, as was said earlier, is too unevenly distributed to be of much use for agriculture ; about 80 per cent. of the total rainfall occurring in the three months of the North-East Monsoon. Some of this rainfall is already being used for irrigation, but there still remains millions of acre feet which could be used to irrigate land still uncultivated or not fully productive.

Most of these lands can be utilised for the cultivation of paddy, sugar, cotton, sorghum, maize and other cereals wherever the soil conditions are suitable. In the case of paddy and crops requiring a high water duty, the availability of land for their cultivation will be further restricted by the water resources. Whether the land that cannot be irrigated can be made productive or not will depend on the practicability of dry farming. Experiments are now being carried out in this system of agriculture, and if they prove successful, then it will be possible to envisage the agricultural development of the entire Dry Zone. Till the economic possibilities of dry farming are proven, development in this area will have to be restricted to that extent of land which can be provided with irrigation facilities.

As the essential condition for this development is the provision of expensive storage reservoirs and the construction of irrigation structures, there has been in the past very little private investment in this sphere of agricultural development in the Dry Zone. A further discouragement has been the hazards cultivation in this region is subject to. It is therefore most unlikely that there will be an appreciable flow of private investment into this sector of the economy in the future. The whole of the cost of development will therefore have to be borne, as in the past, by the Government.

Historical Review of Irrigation and Land Alienation Activities

GOVERNMENT policy on land alienation and land development has undergone a process of evolution over a period of time. The present policy can be understood only by reference to the problems that faced the Government and the methods adopted to surmount them. This historical review is presented in two parts. The first considers the problems and policies up to 1947, when complete self-government was obtained. The next section extends to 1954-55, the year of commencement of the present programme.

(I)—1930-1947

LAND ALIENATION

During the greater part of the British Administration in Ceylon, Crown land was sold outright by auction to the highest bidders. At such auctions Ceylonese and foreigners bought lands and with their own capital developed the plantation industries which are now existing in the Island. This policy, however, was not popular with the rural population. By compelling them to compete with more well-to-do individuals it denied them

the opportunity of acquiring land which they required for the expansion of their villages and for their normal agricultural activities. A review of the policy of land alienation carried out by the Land Commission appointed in 1927, resulted in a radical change of policy. This new policy—

(1) eliminated the sale of land by competition and substituted a mode of selection ;

(2) created a new form of restricted tenure which was neither a lease nor an outright sale ;

(3) established the principle that the needs of the local population must be met before alienation to any other claimants for land was considered ; and

(4) devised a system of mapping out Crown land under which the initiative for land development was to come not from the applicants but from the Government itself.

The Government accepted the view that crown land was the property of the community held in trust by the Government and should be used to the fullest advantage of the inhabitants of the country. The new policy is embodied in the Land Development Ordinance, No. 19 of 1935, which is now the basic law relating to the alienation of Crown land for agricultural development. Under this policy available Crown land in a village is reserved for the expansion of the village and the communal needs of the inhabitants. If more land is available, it is mapped out for alienation to Middle-Class Ceylonese. After the needs of these two classes have been met and if land is still available it could be alienated to others.

IRRIGATION

In ancient times agriculture flourished in the Dry Zone. Paddy cultivation was almost entirely dependent on the vast network of tanks which stored up immense quantities of water for the irrigation of the fields. Wars and civil disruption involved the flight of population from the Dry Zone. The tanks, as a consequence, fell into desuetude and inevitable ruin. The British rulers realized the importance of these irrigation works to the well-being of the people. One commentator stated in 1817 that " the repair of all the small tanks which are dispersed throughout the country and which in many parts have been entirely left to be destroyed is a matter of first interest to Government no less than to the islanders ". But their early efforts were not guided by any definite policy or determined desire to

develop an unified scheme to arrest the abandonment of a very comprehensive and complicated irrigation system, and it was only by 1929 that a systematic investigation of irrigation had been done. Sufficient data had been gathered to serve as a basis for formulating a definite irrigation policy that could be coordinated with the Land Policy that was evolving as a result of the Land Commission (1927). In 1930 with the introduction of the Donoughmore Constitution even greater emphasis was placed on the development of irrigation. During the period 1929-30 to 1946-47 irrigation facilities were provided to 201,528 acres.

LAND DEVELOPMENT AND ASSISTANCE TO ALLOTTEES

In administering the new policy of land alienation, Government found that peasants and middle class persons were unable to make efficient use of their lands as they did not possess the necessary capital. The new system of tenure, moreover, prevented the lands from being mortgaged to raise the required credit. It was realised that a certain measure of Government assistance was necessary if the objects of land alienation were to be achieved.

The Middle-Class Ceylonese were not subsidised to develop the land they obtained. Provision was, however, made for the grant of loans at a low interest rate of 3 per cent. to those middle class allottees who improved their lands with their own capital. These loans were granted for the further development and improvement of the allotments. The Government also undertook the construction of roads to lands alienated to the middle class in order to facilitate development.

Where land was provided to peasants under village expansion schemes, financial assistance amounting to approximately 50 per cent. of the cost of improvement was granted by the Government. A peasant was also entitled to a housing subsidy, a subsidy for the construction of a well, and cash assistance amounting approximately to 50 per cent. of the value of the work done for the construction of a latrine and for the carrying out of soil conservation measures. Free planting materials for the establishment of crops on the allotments were also provided. This scheme of assistance to peasants established on village expansion lands has survived up to the present time without any radical change.

In colonisation schemes where peasants move from thickly populated areas to new homesteads in the scantily populated Dry Zone, it was found necessary to provide an even greater degree of assistance. It soon became apparent that merely rendering cultivable, hitherto abandoned areas in the

Dry Zone was insufficient inducement for migration. Steps would also have to be taken to enable the migrant to develop the land and earn a livelihood within a reasonable measure of time. The Land Commission of 1927 reported as follows:—

"We agree that as a general principle, colonists be encouraged to do as much as possible for themselves. There are, however, a number of directions on which the active assistance of the Government will undoubtedly be necessary. Such will include the opening up of roads and paths, construction of bridges and 'edandas', restoration of tanks and elas, the provision of educational and medical facilities, the opening up of garden for the supply of plants and seed, demonstration plots, etc., the organisation of markets, fostering of co-operative credit, etc."

Thereafter the clearing of the entire extent of land earmarked for peasants was undertaken at Government expense. The further development of the land for cultivation such as ridging and stumping and the construction of a house for the colonist and his family to live in still remained the responsibility of the colonist without cost to Government. But the provision of general amenities for the health and economic development of the colonist was accepted as a part of the Government's responsibility. It was considered that Government should take the necessary measures in these areas for the control and prevention of malaria, the establishment and staffing of Government hospitals and the construction of channels and roads. No cash subsidies were to be paid to the colonist who would have to purchase his own seed and equipment, but he was exempted from payment of irrigation rates for 3 years.

The next stage in the evolution of development policy was reached in 1939 with the commencement of World War II. Increased food production then became a matter of paramount national importance. The pace at which colonization had hitherto proceeded was inadequate to meet the situation. The new policy was designed therefore not merely to expedite the process of development and colonisation but also to derive, in the shortest possible time, the maximum return in the form of food from the capital invested by the Government on the restoration of the irrigation system.

Positive measures were also taken to accelerate the speed of colonization and food production. In addition to providing each colonist with a standard unit of land (including paddy and high land) sufficient to make him economically independent, the following further inducements were offered :—

(a) A suitable dwelling place for himself and his family.

(b) The payment of a subsidy of Rs. 7.50 per acre for ridging or stumping his paddy allotment after his first harvest (clearing would continue to be done by Government).

(c) The payment of a small subsistence allowance for the first six months to enable him to find his feet in his new environment.

Implements and buffaloes for draught purposes were also made available to the colonist on loan. These loans were convertible to outright grants if the colonist showed satisfactory improvement of his allotment. This improvement was to apply both to the low paddy land and to the high land which had been taken over by him. Arrangements were also made for the marketing of his produce.

Additional inducements were offered on the basis of the recommendations made by a Committee established to report on the Parakrama Samudra Scheme. While their report referred mainly to that Scheme, the recommendations made were, with modifications, extended to all subsequent schemes or extensions to schemes then existing. This report recommended that—

(1) All the houses required for the colonists should be constructed by Government before the colonists arrived.

(2) The ridges along contours on paddy allotments be completed before the lands were handed over.

Other forms of assistance too were recommended by this Committee. Some of them were the free supply for the first season of planting material and seed, a subsistence allowance of Rs. 10 per month for the first nine months

The adoption of this policy of granting substantial assistance to persons, who are prepared to leave their homes and establish themselves in new areas and thus assist Government in its programme to reclaim the undeveloped Dry Zone, proved extraordinarily successful. It enabled the establishment of prosperous communities under all major irrigation projects in the Dry Zone, so much so that there has arisen throughout the populated parts of the Island a keen demand for allotments in the Dry Zone colonization schemes. This demand is a striking contrast to the reluctance that prevailed in the 1930's to move into the Dry Zone.

Between 1930 and 1947 the Government has alienated 104,021 acres as village expansion space to 87,076 peasant families, 25,381 acres have also been alienated to middle class individuals, and 20,158 acres to 3,035 colonists who moved from the thickly populated parts of the Island to

allotments in colonization schemes. In addition to this, 10,825 acres of private land in densely populated areas were purchased by the Government and alienated to 4,171 families.

The progress of alienation and resettlement was slow because the resources of the country were limited during the years of the inter-war depression. Moreover, no programme of planned alienation was undertaken during World War II as the Government made Crown land freely available on temporary leases to any person who was prepared to undertake the cultivation of catch crops. The immediate production of food was at that time of the highest priority.

(II) 1947/48—1953/54

In 1947 the country obtained full self-government. Even greater emphasis was now placed on the cultivation of food crops, especially paddy. Added force was lent to this policy as the war years had revealed the dangerous extent to which the country was dependent on external sources for her food supplies. A planned irrigation programme was drawn up aimed at developing 90,564 acres of paddy land under major colonization schemes.

IRRIGATION

Major irrigation works

Of the 90,564 acres to be provided with irrigation under major schemes, Gal Oya was expected to provide 40,000 at the rate of 20,000 acres a year. This Scheme was entrusted to a separately constituted Statutory Board in view of the magnitude of the task of development and colonisation. The Board is responsible for the execution of all functions for the unified development of the Gal-oya and other adjacent valleys that fall within its authority. The main reservoir of the scheme is the Senanayake Samudra whose capacity is 770,000 acre feet.

The construction of the reservoir and power plant, costing Rs. 75 million, was entrusted to a foreign contractor. The designing of the channel system to meet the requirements of the Board and its construction was made a responsibility of the Director of Irrigation.

The Board's programme for the development of the land resources of the Gal-oya and adjacent river valleys provides for bringing under irrigation the maximum acreage of land which is at present inadequately irrigated or not irrigated at all. The gross extent of irrigable land potentially planned for development within the irrigable command of the main reservoir is 124,140 acres. Of this extent 51,640 acres are under-developed privately owned fields cultivated in paddy. The other 72,500 acres represent undeveloped jungle land which can be converted to grow rice. These undeveloped and under-developed extents are confined to the right or the left banks of Gal-oya as follows :—

	Old under-developed paddy lands	*New lands*	*Total*
Left Bank ..	36,140	36,800	72,940
Right Bank ..	15,500	35,700	51,200
Total	51,640	72,500	124,140

Construction of the channels and development work have up to now been confined to the Left Bank, where 22 miles of transmission channels have been completed.

The Board was specifically requested to " adopt in the main the principle of peasant colonization ". This in the context of colonization in Ceylon, involved the Board in blocking out peasant small-holdings, developing them to a certain extent, providing houses and other public buildings and providing financial assistance to the peasant settlers. The progress in development in opening up new land between 1950 and 1954 is shown below :—

Years	*Homestead allotments cleared and prepared Acres*	*Irrigable land made ready for cultivation Acres*	*Reservation for communal purposes Acres*
1950-54 ..	11,588	16,305	14,419

This includes 2,122 acres prepared for alienation to middle-class colonists, 723 acres for development by a pilot co-operative society, and 1,540 acres leased to a limited liability company. Up to the end of 1954, 4,165 peasant colonists had been settled under this scheme.

The shortfall in the irrigation programme of the Gal Oya Scheme reduced the area provided with irrigation between 1947 and 1954 to 72,341 acres. The principal schemes, other than Gal-oya, together with the extents made irrigable in this period are shown below:—

Principal Schemes provided with irrigation facilities and their extents between 1947–1948 and 1953–1954

Scheme	*Paddy Acreage*	*Scheme*	*Paddy Acreage*
Giritale	554	Uriyawa	266
Parakrama Samudra Scheme..	15,045	Mahauswewa ..	418
Elahera	4,406	Attaragalla	860
Minneriya 2 and 3 ..	2,773	Abakolawewa ..	495
Kagama Extension ..	1,741	Kalahagala	93
Nuwarawewa ..	397	Kattiyawa	509
Bathmedilla ..	1,106	Kilinochchi D 8 ..	432
Minipe	756	Muhatankulam ..	805
Ridi Bendi Ela ..	1,648	Okkampitiya	728
Dewahuwa	2,337	Soraborawewa ..	459
Kantalai	5,093	Unnichchai	1,684
Allai	3,620	Katupotha	525
Huruluwewa ..	5,870	Kandalama	363
Iranamadu	1,758	Vanerikulam ..	336
Kottukachchiya ..	668		
Mahakumbukkadawela ..	290		56,036

Minor irrigation schemes

Though emphasis was thrown on major colonization schemes and the department devoted the greater part of its attention to large scale development under these, it must not be assumed that minor irrigation works were neglected. The following table indicates the extents under village tanks and anicuts that were provided with new or better irrigation facilities:—

Area provided with irrigation facilities under minor schemes

	Acres
1947–48	12,590
1948–49	8,771
1949–50	10,339
1950–51	19,734
1951–52	10,346
1952–53	11,779
Total ..	73,559

All the land rendered irrigable under the major schemes was developed by the Land Development Department before the colonists moved in. Until 1950, the degree of assistance given to colonists by the Government remained the same. In that year Government accepted the responsibility of stumping 2 acres of each paddy allotment (the balance 3 acres being left to be stumped by the colonist on payment of a subsidy) and fencing with barbed wire the perimeter of paddy tracts with a view to encouraging proper methods of cultivation from the very start and protecting the crops of the colonists from the depredations of wild animals or cattle. In addition, the responsibility of erecting permanent buildings for all communal and civic needs of the colonists has been accepted as a charge on Government funds and in pursuance of this policy the provision of schools; dispensaries; maternity homes; co-operative stores; sub-post Offices; meeting halls; and quarters for colonization officers, apothecaries, sanitary assistants, midwives and teachers are treated as a part of the development work and their cost met from Government funds.

The high water-mark in the scheme of assistance to settlers in Colonization schemes was thus reached by 1951. The 20 years from 1932 to 1951 had been a period of expanding assistance, financed from public funds for the purpose of, first popularising and then establishing on a sound footing the new policy of major colonization in the Dry Zone.

But great changes had been taking place since the opening up of the Minneriya Development Scheme in 1932. Chief among these was the complete eradication of malaria, the vast improvements in marketing facilities brought about by the operation of the Guaranteed Price Scheme and the establishment of Co-operative Agricultural, Production and Sales Societies and the wider and more extensive use of improved agricultural methods.

In view of this changed situation the scheme of development from about 1952 in colonization schemes has been considerably modified so as to obtain not only the maximum output of development with the limited public funds available, but also, in the context of vastly improved co-operative and marketing services and agricultural methods, the maximum co-operation possible from the settlers themselves in the initial development of, and improvements to, the lands allotted to them.

One of the major changes was an alteration in the size of the allotment from 8 acres (5 acres irrigable and 3 acres garden) to 5 acres (3 acres irrigable and 2 acres unirrigable). It was felt that 5 acres of irrigable

land was too large for an average peasant family to operate except on extensive methods. The land was not thereby used to its maximum economic capacity. Reduction of the irrigable extent to 3 acres would enable a peasant family to cultivate it intensively but yet keep his family fully employed and yield him an income as large as that from the larger holding. The optimum size of a unit is not uniquely determined for all time. The optimum agricultural unit would vary with changes in the size of the family, techniques of production and the desirable standard of living.

The development of land prior to its alienation to settlers was also curtailed. Departmental stumping was given up in the first instance and the settler was assisted with a subsidy of Rs. 200 for stumping one acre of his allotment. Departmental contour ridging has also now been abandoned and the colonist is expected to attend to this item of development work after settlement on payment of a subsidy of Rs. 40 per acre. Perimeter fencing of the paddy area will cease to be a charge on public funds altogether from now onwards. The colonist is expected to fence his allotment ultimately with the help of a loan in cash or kind from the Co-operative Agricultural, Production and Sales Society of which he would be a member.

The most substantial saving has been effected in the cost of housing. The earlier type plan for a settler's cottage provided for an overall area of 630 sq. ft. and cost in the neighbourhood of about Rs. 3,500. With modifications both in its size and its specifications the cost of a settler's cottage has now been brought down to approximately Rs. 1,300. Similar austerities have been introduced in the case of public and communal buildings, wells, roads, &c.

VILLAGE EXPANSION

Village expansion schemes on the lines mentioned previously continued in this period too. The Government adopted still another method of relieving the land hunger of the peasant who lived in the densely populated Wet Zone. As most of the Crown land in these neighbourhoods had been alienated, private estates were acquired and divided among the villagers. This policy was popular as the peasants obtained a fully cultivated allotment in close proximity to their homes.

In the early years the price of land was reasonable and the policy was not expensive. But when the price of agricultural produce shot up in the post-war years, particularly as a result of the Korean War, the price of land became extraordinarily high and the policy proved to be expensive.

A comprehensive review carried out in 1953 led to the discovery that estates, in large holdings of tea, rubber or coconut managed efficiently by private individuals, when acquired by Government and divided up among peasants in small holdings resulted in a rapid deterioration of the agricultural condition of the properties. This was a loss to national wealth. The policy now is to emphasize the need to shift population from the thickly populated parts to scantily populated areas and to acquire private land for alienation to landless peasants in localities where employment is available for the growing population. The size of such allotments have been considerably reduced and only land sufficient to build a rural house with a reasonable portion for a compound is now provided. In spite of this modification of policy, the need to acquire fair extents of land in the thickly populated areas to meet the growing needs for living space of the population, particularly in the Kandyan areas, continues.

During the period 1947 to 1954, 56,034 acres were made irrigable, which together with 32,725 acres of highland were settled on 12,482 colonists. Under village expansion schemes 203,681 acres were alienated to 127,195 families and 28,777 acres to 2,134 middle class individuals. Finally, 16,060 acres of private land were acquired and parcelled out among 7,733 families. These figures do not include irrigation and development carried out by the Gal Oya Development Board.

The Six-Year Programme and the Future

THE historical review has shown that the Government has been most active in implementing the policy enunciated at the start of this Chapter. But the overall problem of providing land to the landless and employment to the unemployed is by no means solved. The present phenomenal rate of population growth makes it even more necessary to extend the cultivated area as fast as possible. The basic policy during the next six years will not be altered.

LAND AVAILABLE FOR DEVELOPMENT

It was stated earlier that the gross land area available for new development is 3.25 million acres. This land area is distributed between the Dry and Wet Zones. It is estimated that out of this about 3 million acres are in the Dry Zone most of which can be made irrigable ; but it will be

necessary to reserve a part of this land for homesteads and for highland cultivation. Therefore the estimated potential of the land available for development in the future is roughly about 2 million acres.

WATER POTENTIAL OF CEYLON

Do we have the water resources necessary to bring this vast extent of land under cultivation ? That is the next question that demands an answer.

The main water resources of Ceylon are in her rivers, which are fed by the two monsoon rains. All the river besins get the North Monsoon and some rivers get both monsoons. The single monsoon river basins are those that are in the dry zone.

There are in all 103 drainage basins, of which 34 are comparatively large —each with water sheds of 100 square miles and over. Out of the 23,415 square miles, which constitutes the total land area of Ceylon 20,100 square miles are drained by these 34 basins. Seven of these basins are wholly in the Wet Zone, two are partly in the Wet and partly in the Dry Zone and the other twenty-five are wholly in the Dry Zone.

The largest river basin is that of the Mahawali Ganga, which has a drainage area of 4,110 square miles with an average run-off of 800 acre feet per square mile and the smallest of this group is Magalavattavan Aru in the Eastern Province with a drainage area of 135 square miles and an average run-off of 1,200 acre feet per square mile.

The Dry Zone group yields 13.1 million acre feet whereas the Wet Zone group yields 16.7 million acre feet of water per annum. With the water resources of the 27 river basins which are partly or wholly in the Dry Zone 3.6 million acres can be irrigated for one crop a year with a water reuse factor of .4. Whether more land could be irrigated with the water available depends entirely on the economic use of water by the people to whom it is provided.

The present area under irrigation both from minor village works and major works is estimated at 0.5 million acres. The land available for future development under irrigation is estimated at roughly 2 million acres. It will therefore be seen that our water resources are possibly in excess of our land resources.

IRRIGATION

Into the next six years will be continued those works on which construction has already been started and whose development awaits the completion of the headworks. Schemes both large and small have been

formulated to be taken up and constructed during this period. Some of these schemes extend beyond six years but the major portion of development will be within the period.

Some of the more important schemes on which work has already begun are discussed below.

PADAWIYA

The restoration of Padawiya which is one of the oldest irrigation schemes in the Yan Oya Basin has just begun. It has been planned and designed as one of the major reservoirs that will be constructed for the development of water resources in the Yan Oya Basin. Its irrigation potential is 14,000 acres for an approximate capital outlay of Rs. 14.8 million. The implementation of this scheme will help to open up an area in the north-east, north of Trincomalee.

PAVATKULAM

Another scheme of some magnitude that is under way now is Pavatkulam in the Malwattu Oya Basin. It forms one of the many reservoirs contemplated in the systematic development of Malwattu Oya. It has an irrigation potential of 4,500 acres for a capital outlay of Rs. 7.35 million. This is designed to meet the needs of the people living between the famous Giant's Tank and Madawachchiya.

VAVUNIKULAM

Another scheme of some consequence is Vavunikulam located in the north-west sector in the Northern Province with an irrigation potential of 6,000 acres for a capital outlay of Rs. 5 million.

GAL-OYA

A survey has been made by the Board of the supplementary water resources available within the area of authority. The extent which can be irrigated by these resources are as follows :

				Acres
Right Bank—Pallang Oya Detention Reservoir	..		..	2,200
Pannel Oya ..	..	..	..	5,600
Left Bank—Balagala Tank	..	..	..	1,000
Namal Oya Detention Reservoir		..	..	2,900
				11,700

This 11,700 acres must be added to the 124,140 acres irrigable by the main reservoir to obtain the full irrigation potentialities of the land within the Board's area of authority.

These additional reservoirs are to be constructed on a four-year programme. The total estimated expenditure over the four-year period is Rs. 41 million and the tentative programme is as follows :

1954–1955	Completion of the Left Bank Main Channel and distributaries.
1955–1956	Construction of Pallang Oya Detention Reservoir with 7 miles of Right Bank Transmission Channel Construction of Eligal Aru Detention Reservoir.
1956–1957	Construction of Pannel Oya Reservoir and the balance 19 miles of transmission channel.
1957–1958	

OTHER SCHEMES

In the mid-country, schemes like Mapakadawewa, Badulu Oya, Mahawilachchiya and Kimbulwana will help to open up about 9,000 acres at a capital outlay of Rs. 10 million. In the South there are Handapanagala and Badagiriya, which are no doubt small but will help to consolidate the position of the village life around these schemes.

Projects of this nature which are already in hand will provide irrigation facilities to the extent enumerated in the table below.

Area to be provided with irrigation facilities under continuing projects

(Acres)

	1954–55	1955–56	1956–57	1957–58	1958–59	1959–60
Irrigation Department Schemes	12,231	14,706	18,207	21,300	15,000	10,750
Gal Oya*	7,800	6,857	3,000	4,500	5,500	5,500
Total	20,031	21,563	21,207	25,800	20,500	16,250

Besides these continuing projects, other new works will also be taken up as schemes commenced earlier are completed so that there will be sufficient work to engage the entire resources of the Department. The major new schemes to be commenced during the six-year period are discussed later. But it is not possible to give a list of the smaller works at this stage. Those at present in hand and those to be taken up in 1955/56 are listed in the relevant schedules. A sum of Rs. 6.5 million annually has been provided for works of the latter type in the Plan.

FLOOD PROTECTION

Besides the provision of water to new land, the Irrigation Department also concerns itself with the reclamation of swampy lands for agricultural

* The development of the Left Bank would be completed by 1955–56. Acreage data from 1956–57 onwards are mainly for the Right Bank and must, at present, be considered as rough approximations.

purposes. Only a few minor schemes, along the west coast, particularly in the densely populated areas south of Colombo have been so far undertaken. Work involved in these schemes has been mainly the building of small tidal bunds to keep the tide water from flowing into the low-lying areas and the improvement of drainage by keeping the drainage outfalls open. Several works of this nature have been begun and will be continued in the next six years, chief among them being the Muturajawela, Madampe Lake, Hikkaduwa, Kaikawela and Mahawelyaya Drainage Schemes.

The Colombo North Development Scheme will also be commenced. 725 acres of marshland in and around Colombo will be reclaimed to provide urgently needed sites for housing, warehouses and recreation grounds. This will enable the city to expand on planned lines. The new haulage road will be an useful addition to the city network of roads. Moreover, the San Sebastian Canal will be deepened and widened to allow the transport of goods to the harbour which in turn will reduce the traffic congestion on roads in the harbour area. The total cost of the Scheme is Rs. 100 million. Of this amount Rs. 20 million has been allocated for the expenditure during the period of the programme.

Protection of valuable agricultural land from the ravages of floods is another problem that has been given attention. Work on several flood protection schemes now in hand, e.g., Akkranwila, Gin Ganga and Nilwala Ganga. This aspect of flood protection is also being kept in mind in the designing of several future multipurpose projects.

BASIN DEVELOPMENT

Schemes for basin development have been planned on a multi-purpose concept. Earlier, because of the lack of an organization to undertake studies on a wider basis and because of the necessity to meet the immediate requirements of the people, each scheme was considered individually as an end in itself. It is now necessary to abandon this fragmentary approach and to view each scheme as a component until in the overall development of the basins.

The planning of water resources cannot be dissociated from the planning of all other resources ; nor can it be dissociated from those fields of economic activity which give rise to needs to be met by water development. This leads to the conclusion that all development should be planned as an integral part of a comprehensive plan for the development of a region or country.

The question then arises as to what should be the managable unit from the point of view of preparing an overall development plan. For planning of water resources, a river basin, or in some cases a group of river basins, will be found to be the most convenient unit. The main principle to bear in mind is, that works to be undertaken immediately should not be in conflict with the interests that may arise at a later stage. In the present planning this is achieved by observing the following principles :

(*a*) All works within a region or basin have been co-ordinated to form a comprehensive plan of development.

(*b*) Wherever practicable, planning is based on a multi-purpose concept.

(*c*) Planning has been developed on actual or potential needs before considering individual projects and programmes.

Of the 103 river basins to which reference has been made earlier, 39 units having each an area of 100 square miles or more have been taken up for detailed study and survey.

The following river basins will be investigated in the course of the next six years. On some of them construction of headworks and the provision of irrigation facilities will commence during the six-year period. Others will be investigated for commencement later.

RIVER BASIN SCHEMES TO BE COMMENCED UNDER THE SIX-YEAR PROGRAMME

Walawe Scheme

This project is designed to develop the water resources of Walawe river and its tributaries. The basin area is 954 square miles and the basin has the benefit of both the North-East and South-West Monsoons. For the full utilization of the water resources, three storage reservoirs are proposed in the basin.

The Walawe Reservoir, across the main river, will have a catchment of 610 square miles with a storage capacity of 250,000 acre feet. Hulandulu Oya Reservoir will be situated across a small tributary of the Walawe which enters the parent river below the main dam on the right bank. It will have a catchment of 71 square miles with a storage capacity of 23,000 acre feet. This reservoir is intended to be a balancing reservoir in a scheme of lift irrigation under the right bank channel of Walawe for crops that do not require heavy irrigation during the dry season. The third is the Mau Aru Reservoir which is intended to impound the waters of the tributary of that

name, which enters the main river on the left bank below the main dam. The catchment area of the Mau Aru is 140 square miles with a proposed storage capacity of 29,000 acre feet. Its main function is to supplement the water in the left bank of the Walawe Scheme, when more water is required for power development.

The irrigable lands are under the two main canals on the left bank and right bank of the Walawe Reservoir. The former, in a length of 32 miles, will command 12,000 acres of irrigable lands and the latter will command 28,590 acres in a length of 25.5 miles.

The water from the right bank will be pumped up to Hulandulu Oya Reservoir whenever necessary, and a right bank channel, about 13.5 miles long, taken off this secondary reservoir, will irrigate an additional 5,000 acres for dry crops during the dry season.

Under the existing diversion weir at Liyangahatota and Ridiyagama Tank of 21,000 acre feet, there are 15,000 acres under cultivation. After the construction of the proposed reservoir these 15,000 acres will be ensured of a better supply of water which will enable them to be cultivated twice a year without any risk of failure.

In addition to irrigation the reservoir is designed to generate a firm power output of 6,000 k.w. to supply to present consumption centres along the south-east coast as far as Galle and the planting districts to the north and west of the dam.

Walawe is in spate twice a year and with the construction of the reservoir there will be a measure of flood relief in the lower valley particularly during the critical periods of the cultivation season. This project is estimated to cost Rs. 167 million excluding cost of land development and colonization. Work on this project which will take 10 years to complete will begin in 1956/57. Within the six-year period Rs. 24 million will be spent on irrigation work and Rs. 1,239 million on land development.

Heda Oya Region

Heda Oya Region covers an area of 540 square miles located in the south-east sector of Ceylon. Two major river basins draining the region are the Heda Oya and the Karanda Oya.

To utilize the greater part of the water resources of the upper reaches of the region, it is proposed to construct two reservoirs, one across the Heda Oya and the other across the Karanda Oya. Out of the estimated catchment area of 540 square miles for these two rivers, the two reservoirs

will absorb 221 sq. miles. The Heda Oya Reservoir will have a storage of 280,000 acre feet capable of irrigating 22,000 acres for two paddy crops a year or 44,000 acres for one crop a year. The Karanda Oya Reservoir storage potential is 85,000 acre feet capable of irrigating an additional 6,000 acres for two crops a year or 12,000 crop acres per annum. In addition it will be possible to develop from this latter reservoir 1,000 h.p. of electric energy. The Karanda Oyo project is estimated to cost Rs. 770,000 on designs and investigations and Rs. 22,680,000 on construction.

Of the available irrigable land of 56,000 acres, under the Heda Oya Reservoir 13,000 acres lie on the right bank and 43,000 acres on the left. In addition to this 22,100 acres of highland will be developed.

The estimated total cost of the Heda Oya Scheme is Rs. 94 million of which Rs. 1.175 million is estimated to be spent up to the end of 1959/60.

Aruvi Aru Basin or Malwathu Oya

Malwathu Oya or Aruvi Aru Basin drains 1,260 square miles in the north-west sector of the Island. This is the second largest river basin in Ceylon. From early days Malwathu Oya basin has been the scene of changing settlements. As a consequence there are no less than 1,014 working reservoirs and 434 abandoned reservoirs in this region. The estimated density of working tanks in the basin is approximately one reservoir per 1.20 square mile of the basin. The most important working tanks are Nachchaduwa, Bassawakulama, Nuwara Wewa, Tissa Wewa, Irratiperiyakulam, Sangalikandarawa, Giant's Tank and Akati Murippu.

This basin in its present state of development has an irrigable potential of 25,000 acres for two crops a year. That is 25,000 acres can be cultivated for a Maha and 25,000 acres for Yala. To utilise this water a development project near a point in the lower reaches called Kappachchi has been selected in the lower reaches. The proposed reservoir will have a storage capacity of 230,000 acre feet.

From this reservoir a right bank channel will be taken off, which will command a wide belt of flat land stretching out to Palk Strait. In its length of 35 miles it will command 30,000 acres of new land. In addition it will provide irrigation water to the existing 20,000 acres under the Giant's Tank and Akathi Murippu Schemes. This scheme, including the existing irrigable area of 20,000 acres, will make possible the development of 71,500 acres. It is estimated to cost Rs. 1.235 million on investigations and designs and Rs. 61.5 million on construction.

This region is subject to periodical drought with the result that the efforts of the cultivators often meet with failure. The construction of a large reservoir to hold up the water that now goes to waste will enable the region to build up a better economy and maintain a higher standard of economic security. Work on this Scheme will commence in 1956-57 and extend for 14 years. It is estimated that Rs. 890,000 will be spent on it in the six-year period.

Minipe Extension Scheme

The present Minipe Scheme is the revival of an old irrigation system striking out from Mahaveli Ganga on its left bank. It now commands 3,800 acres in a length of 18 miles of channel. At the site of the present head-works a total area of 1,202 square miles drains into the river. About 35 per cent. of this area which receives the benefit of both monsoons lies in the Wet Zone. The mean annual precipitation over the basin is reckoned at 102 inches. The flow at the present diversion works has been gauged and according to these observations the minimum dependable flow at the site during the cultivation seasons is estimated at 2,000 cusecs.

The studies made so far indicate that a gross area of 64,000 acres in a channel length of 78 miles can be commanded. An extent of land averaging 1½ miles in width over the whole channel length stretches from the headworks of Amban Ganga, a major tributary of the Minipe Ela which joins the latter in its lower reaches.

The net area that will be available for irrigation in the reach of this extension scheme is estimated at 32,000 acres including both the 3,800 acres developed under the existing scheme and the 650 acres of presently rain fed paddy. It will thus command an additional area of 28,200 acres of irrigable land and provide water to undertake two cultivations a year. The crop acreage irrigated will therefore be 56,400 acres per annum. The water available at the diversion site is far in excess of the water required for the full development of the area available on the left bank.

The improvement to the existing works and the extension of the channel is estimated to cost Rs. 28.91 million and requires 9 years to complete. Between its commencement in 1957-58 and the end of the six-year period in 1959-60, Rs. 590,000 is estimated to be utilized for improvements to the existing works and extension to the channels. It is estimated that an additional Rs. 16 million will be spent on land development work in the period. In assessing the value of this scheme to the country the main factor to be considered is the rehabilitation of a large population who have been deprived of their lands by the uncontrolled expansion of the

planting industry in the Kandyan Provinces. This Scheme will enable the resettlement of the large mass of the Kandyan Peasantry in improved circumstances.

Kirindi Oya

Kirindi Oya basin is 475 square miles in extent and is located in the south-east sector of the Island. The river has its head waters in the hills around Haputale at an elevation of 4,000 feet above mean sea level and flows southwards in a course of about 61 miles before it enters the sea.

There are a number of working tanks in this basin and also some minor diversion works in the upper reaches of the basin. There is the major diversion work—Elagala Anicut—located on the main river, giving rise to the present Kirindi Oya Scheme which is the only major development in the basin. The extent of irrigated land at present is estimated at 9,800 acres, of which 1,400 acres are under minor schemes. The site proposed for the present dam is located at a site called Lunuganwehera and intercepts 352.4 square miles of catchment. The mean annual gauged run-off at this point is estimated at 322,000 acre feet. The irrigation potential in terms of paddy in an average year is 30,000 acres for two crops or 60,000 acres a year. The minimum storage required is 136,500 acre feet. To utilise the run-off from good years of rainfall and to effect a measure of flood absorption, a storage capacity of 180,000 acre feet for the reservoir is, however, proposed.

The storage water will be led in right bank and left bank channels to command an extent of 35,000 acres of new lands.

With the construction of the new scheme, the "status quo" of the existing 8,400 acres under the present Kirindi Oya Scheme will be main-tained but its water-requirement will be assured. In a normal year it would be possible to cultivate 60,000 crop acres, i.e., for both crops 8,200 acres of new land, 8,400 acres of existing irrigable land, and for Maha only 26,800 acres of new land. The scheme as designed is estimated to cost Rs. 83.55 million. Of this amount Rs. 710,000 is estimated to be spent in the six-year period. The scheme is to be commenced in 1956-57 and will take 14 years to complete.

RIVER BASIN SCHEMES TO BE INVESTIGATED DURING THE SIX-YEAR PERIOD

In earlier times it was not sufficiently realised that if a planned policy of irrigation is to be developed, steps should be taken to prepare major schemes progressively so that they may be given priority and placed in

future programmes. When the present programmes were being formulated, the need for such a continuous study of schemes became apparent, even though some of the schemes may not be taken up for construction immediately.

1.—Magalavattavan-Mundeni Aru Region

This region which is composed of two major river basins—Magalavattavan and Mundeni Aru—together with a few minor river basins covers an area of 800 square miles situated in the south-east sector of Ceylon, and contains in part the revenue districts of Batticaloa and Badulla.

Plan of Development. The development plan visualised in this region is for the final storage of 643,000 acre feet of water in four major reservoirs which together with the existing Unichchai Tank and three proposed diversion weirs will make possible the conservation of water and its distribution for irrigating 39,250 acres of new paddy land and for the improvement of irrigation facilities for 23,400 acres of existing lands. In addition to the new irrigable lands 40,000 acres of highland will be developed for highland cultivation, civic settlements and other public amenities. The capital cost in developing the entire basin is estimated at about Rs. 208.5 million including the provision of up-to-date communications.

The four major reservoirs envisaged are described below:

Magalavattavan Reservoir

The present proposals are to construct Magalavattavan Reservoir which will be operated to supplement the existing Unichchai Tank and to develop a total of 16,000 acres of one paddy crop a year. This acreage will include 7,500 acres already under cultivation under Unichchai Tank as well as 2,225 acres of at present rain-fed cultivation.

Rambukkan Oya Reservoir

Rambukkan Oya Reservoir is in the adjoining catchment. It is so designed to spill over the divide into Magalavattavan Reservoir during the floods and thereby supplement the water resources of Magalavattavan Oya catchment. This reservoir will irrigate 15,000 acres for one cultivation of paddy a year under Division Weir No. 1 to be constructed on Magalavattavan Aru above Unichchai Reservoir to which Magalavattavan Reservoir

can supply water in times of emergency and be responsible for 4,000 acres out of a total of 15,000 acres. This total acreage will include 5,750 acres of existing lands which are at present rain-fed.

Maha Oya Reservoir

Maha Oya Reservoir which lies in the catchment adjoining Rambukkan Oya will irrigate 5,000 acres for one paddy crop a year directly under it and another 22,650 acres for one paddy crop under Weirs Nos. 2 and 3 to be constructed on Maha Oya and Mundeni Aru respectively.

Galodai Aru

Galodai Aru will irrigate 7,500 acres of paddy a year and also supplement the water to irrigate 8,625 acres for one paddy crop a year under Weir No. 3.

The water utilization planned here is based on the interdependency of the reservoirs and water distribution in the two basins. Out of a total of 800 square miles of the region 328 square miles will be utilized as the catchment area which will give a dependable annual yield of 468,000 acre-feet at the proposed points of storage. However, the combined storage capacity of the reservoirs will be 643,000 acre feet.

Irrigable Potential of the Combined Scheme. The region has 129,500 acres which can be commanded by the several reservoirs contemplated. However, with the water resources available it is estimated that 82,650 acres can be irrigated inclusive of 23,400 acres of existing paddy under Unichchai Rugam and Tembichchiya.

Phasing of Development. The first stage of development will be the construction of Magalavatta van Reservoir which will supplement the waters of Unichchai and enable the development of 16,000 acres of irrigable land now partly commanded under the Unichchai Scheme. Together with this Weir No. 1 on Magalavattavan Aru will be constructed to irrigate 4,000 acres on its right bank. Stage II of the development will be the construction of Rambukkan Reservoir and the development of Weir No. 2 and the channels system thereunder.

The third stage of development will be the construction of Maha Oya Reservoir and the development of the channels system under Weir No. 3 together with the left bank channel taking off direct from the reservoir.

The fourth stage of development will be the construction of Galodai Aru Reservoir and the development of the lands on the left bank of Weir No. 3 as well as the lands to be under direct irrigation by the Left Bank Channel of Galodai Aru Reservoir.

2.—Kala Oya Basin

Kala Oya Basin located in the north-western sector of Ceylon covers an area of 1,044 square miles. Due to its present state of development it can be divided into two zones, an upper and a lower zone. The upper zone forms the catchment of Kala Wewa and covers 325 square miles, the lower zone covers the catchment of the proposed reservoir. The water resources above Kala Wewa have been used to develop in all 30,000 acres under paddy. Most of this area has sufficient water to take two crops a year. The balance, particularly the fields depending on the smaller reservoirs, can take only the wet weather cultivation.

Besides paddy cultivation, probably an equal extent of land has been developed under other crops in village settlements, and under shifting cultivations which cannot be brought under systematic development due to lack of water.

Proposed Site for Development. For the purpose of developing the water resources of the lower basin, three suitable sites have been selected and investigated. The upper site known as Siyambalagamuwa Reservoir is an abandoned tank which has a fairly substantial bund with a single breach through which Siyambalangamuwa flows to join Kala Oya lower down.

The other two reservoirs will be constructed on the main river, one at Kadigala and the other one lower down. At each of these three sites it is proposed to develop reservoirs to store the North-East Monsoon river flow and develop a system of irrigation to irrigate the lands lower down stretching far into the low reaches of the basin. At these three points of development it is expected to utilize 331,000 acre feet of water, which is available in an average year.

Distribution of Water Resources. Assuming that only 244,000 acre feet will be available for development, it is proposed to assign 34,000 acre feet to Siyambalangamuwa Scheme, 104,000 acre feet to Kadigala and 106,000 to the lower site. In estimating these yields any in-flow from Kala Wewa as a result of its spilling during the wet weather has been ignored.

Irrigation Potential. With an estimated annual yield of 34,000 acre feet at Siyambalangamuwa the irrigable potential is 2,720 acres for a Maha and a Yala or a total of 5,440 crop acres per annum. At Kadigala with an annual yield of 104,000 acre feet, the irrigable potential is 8,320 acres for two crops a year or 16,640 crop acres per annum. At the lower site, with an estimated yield of 106,000 acre feet, irrigable potential is 8,500 acres for two crops a year or 17,000 crop acres per annum. Thus the complete development under the three reservoirs will give a total irrigable potential of 39,080 crop acres per annum.

The three reservoirs are expected to cost Rs. 72 million, i.e., Siyambalangamuwa—Rs. 6.555 million, Kadigala Reservoir—Rs. 40.295 million, and the Lower Kala Oya Reservoir—Rs. 25.15 million.

This project when completed will develop 66,080 acres of land that are now lying waste.

3.—*Yan Oya Region*

The region included in the Yan Oya basin unit of development covers an area of 1,537 square miles embracing 10 rivers of various sizes, the largest of which is Yan Oya with a basin area of 594 square miles. This region lies in the north-east sector of the Island. The Central, North-Central and Northern Provinces are covered by this region in whole or in part. It is in this basin that the ancient tanks of Huruluwewa, Padawiya, Wahalkada and Morawewa are located.

Plan of Development. It is estimated that about 600,000 acre feet will be available in a normal year of rainfall which can be developed for irrigation at the points of storage recommended. The development plans envisage the construction and operation of 6 major reservoirs whose aggregate storage will be something like 436,400 acre feet. The Scheme will consist of three new constructions to be named Horawupotana, Kiul Oya and Lower Yan Oya Reservoirs and will include the restoration of three abandoned reservoirs at Padawiya, Wahalkada and Morawewa. All these 6 reservoirs are interdependent and the proposed distribution of water resources is such that the maximum use can be made of the available water. The aggregate storage of 436,400 acre feet proposed in these 6 reservoirs is about 65 per cent. of the mean annual run-off of the catchment intercepted by them. The gross irrigable area falling within the development scheme is 198,000 acres of which about 98,400 acres can be taken as net irrigable extent.

With the water resources available the irrigation potential is slightl less than this, namely, 94,250 acres of paddy per annum. These woul require a highland area of 54,200 acres for homesteads, highland crop &c. The net highland available is actually much more, namely, 66,00 acres. Therefore the total agronomic development anticipated in a norma water year is estimated at 94,250 acres of paddy together with 54,200 acre of highland for dry crops, homesteads and civic centres.

The development of Yan Oya region is estimated to cost Rs. 150.46 million. This excludes the cost of repairing Padawiya Tank which is now in hand.

THE BENEFITS OF THE RIVER BASIN SCHEMES

All the basin development schemes outlined above will provide irrigation facilities to approximately 325,000 acres of land which are at present covered with thick jungle. They will, in addition, provide improved irrigation facilities to about 57,000 acres of existing paddy land. The total area of development will therefore be 382,000 acres of paddy land which, with double cropping, will enable the cultivation of 492,000 acres with paddy per annum. The projects will also develop 171,402 acres of highland for unirrigated crops and homesteads.

On the assumption that about 80 per cent. of the available paddy land will be devoted to peasant colonisation, it would be possible to re-settle approximately 85,000 peasant families under these projects. The balance 20 per cent. could be given out to Middle Class individuals or to capitalists and companies for speedy development.

LAND ALIENATION AND SETTLEMENT DURING THE SIX YEARS

From the irrigation and colonisation programme of the Government, it will be seen that during the six years an extent of approximately 150,000 acres will be alienated to about 30,000 peasant families selected from congested and economically backward areas. An additional 33,000 acres will be rendered irrigable by the Gal Oya Board and alienated to 6,000 families.

The Government will also go ahead with its plans to meet the necessity of expanding villages in areas where employment opportunities exist. Towards this end, the Government proposes to alienate approximately 20,000 acres annually or 120,000 acres for the six-year period as village expansion space. It is estimated that this extent will be distributed among 100,000 families.

In addition, it has been planned to re-settle approximately 1,500 families each year from thickly populated parts on land in the wet and intermediate zones which are suitable for commercial crops. It is proposed to provide the families that move into these lands with all the necessary amenities that are now provided to colonists who move into dry zones colonisation schemes and to provide them with sufficient assistance to establish crops such as tea, rubber and coconut in economic units which will enable them to obtain a reasonable livelihood in the years to come. In this manner, it is proposed to open up 5,000 acres each year in tea, rubber and coconut.

The Government will carry on its policy of giving out land to middle class individuals in large blocks for speedy exploitation in food as well as commercial crops. The extent so alienated is expected to be about 20,000 acres a year.

To summarise, during the six years,

150,000 acres of land of which 90,000 acres will be provided with irrigation facilities, will be developed and alienated to 30,000 families. An additional 33,000 acres will be rendered irrigable in Gal Oya.

120,000 acres of village expansion land will be alienated for the settlement of approximately 100,000 families.

25,000 acres will be alienated for the establishment of commercial crops on which 7,000 families will be settled.

and 120,000 acres will be alienated to middle class individuals for development.

LAND POLICY

The present policy of Government regarding the alienation of Crown Land is based on the Land Development Ordinance of 1935, which was enacted to give effect to the recommendations of the Land Commission Report of 1927. From the date of the enactment of this Ordinance large extents of Crown Land have been alienated to peasants both in Colonisation and Village Expansion Schemes. Allottees also received assistance from Government for the development of their land.

In spite of the large expenditure incurred by Government in the administration of the new policy, it is felt that all the land alienated is not being used efficiently. It is also felt that an attitude of dependence has been created among allottees as a result of the very substantial assistance given to them for the development of their allotments. The time is therefore ripe for the Government to undertake a comprehensive review of the entire

policy of alienating Crown land, to adopt new measures to promote efficient land use which will add to the national wealth of the country, and to bring into existence according to the original objective a prosperous multitude of peasant proprietors.

A Land Commission is therefore to be appointed to inquire into and report on—

(i) the laws of Ceylon relating to the alienation and administration of Crown land with particular reference to the Land Development Ordinance No. 19 of 1935, and to make recommendations for the amendment of that Ordinance and other laws relating to land ;

(ii) the administrative arrangements made for the implementation of the Land Development Ordinance No. 19 of 1935 and to make such recommendations which they may consider necessary to promote greater efficiency and to reduce the cost to Government ;

(iii) the policy of Government regarding the alienation of Crown Land and to make recommendation which they may consider expedient with reference thereto ;

(iv) the assistance granted by Government to settle peasants on land and to suggest any revision of the policy of assistance which they may consider expedient ;

(v) the credit facilities available for the development of new land and to make such recommendations which they may consider necessary ;

(vi) the revenue collected by Government on Crown lands that have so far been alienated and to make recommendations to secure an adequate return on the capital invested by Government on the development of such lands ;

The Commission will in addition—

(vii) make any recommendations which they may consider expedient and practicable—

(*a*) for the efficient use of Crown land that has been alienated under the Land Development Ordinance and the remaining Crown land :

(*b*) to prevent the alienation of private land in Ceylon to non-nationals ;

(*c*) to prohibit the future fragmentation of private holdings.

CHAPTER 4

THE IMPROVEMENT OF NON-EXPORT AGRICULTURE

THE previous chapter contained an analysis of the problem of extending the area under cultivation with non-export crops. The present chapter discusses the problem of improving the productivity and efficiency of agriculture, which, in itself, is an important source of additional output.

The Background

NON-EXPORT agriculture displays all the characteristics of inefficient peasant farming. The small size of the individual holdings is one of the commonest features. The rural population is so large and increasing so rapidly that the available land has to be parcelled out into " postage stamp " holdings. If the disparity between the available land and the rural population becomes acute, rural landlessness becomes wide-spread. An economic survey of 108 villages carried out in 1950 sheds light on the size of holdings in rural areas. Although the sample was not truly random, the position throughout the country could not be widely different to that revealed by the survey. A classification of the ownership of land by size of holding is given below.

Ownership of land by size of holding

Extent	*Number of agricultural families*	*Percentage of total agricultural families*
No land	2,300	26
Less than ¼ acre	1,396	16
¼ acre and less than 1 acre	1,033	12
1 acre and less than 2 acres	1,310	15
2 acres and less than 3 acres	793	9
3 acres and less than 5 acres	884	10
5 acres and less than 10 acres	646	8
10 acres and above	371	4
	8,733	

Source : Survey of Rural Landlessness

It would appear from the data above that over a fourth of the agricultural families in the villages possess no land whilst 16 per cent possess less than

half an acre which would suffice only for a dwelling and a minimum of cultivation. Almost all of these families, if they work solely on their holdings, must be severely under-employed.

Share cropping also arises under these circumstances. The landless villager in his effort to obtain some food becomes a share-cropper. Ownership and cultivation of the land is thereby divorced. Since the owner of land in an overcrowded village is in a relatively strong position, the labourer has to cultivate the land on terms favourable to the landlord. An increase in share-cropping is a clear indication of rural landlessness and of the increasing pressure of population on land resources.

The survey also revealed that the median size of holding for agricultural families was only .82 of an acre for all purposes. This is an uneconomic size both technically and also because it fails to yield an income adequate to sustain those dependent on it. If, of course, a holding of this minute size is cultivated very intensively with market garden crops of high unit value, it could provide an adequate income. Most of these holdings, however, are cultivated with cereal crops of low unit value. The contrast between the size of holdings in the village and those on colonization schemes is too marked to escape attention. Doubts have been raised whether the smaller holding of 3 acres of irrigable land and 2 acres of high land on colonization schemes is an economic unit or not. Such a controversy probably appears unreal to villagers outside the schemes as 78 per cent. of the families have less than 3 acres of land each. A villager in the Wet Zone is, of course, more favoured in regard to weather and rainfall ; but these advantages are of no avail, if he has no land to cultivate.

The main peasant crop is paddy. This is the most rational course a peasant can adopt since cereal culture, and of the tropical crops especially rice, yields the highest production of food calories per unit. As rice can support a large number of people per square mile, exceptionally high densities of population tend to emerge. Since the cultivation of rice takes place on every bit of land that can support it, only very small extents can be spared for the cultivation of any other food crop. Thus peasant agriculture too is singularly undiversified. This explains the absence of animal husbandry for food purposes. In the absence of pasture lands, the animals would compete with the humans for the very limited food supply. Land cannot be spared for pasture or food for animals. Animal husbandry cannot thrive in such an environment. The animals that are kept in a rice-growing economy are those that are useful in the cultivation of paddy. This is the reason for the popularity of buffaloes. They are water animals, not very fastidious as to their food and to a certain extent immune to the

ill effects of periodical underfeeding. The nutritional level of peasants is consequently poor as the larger portion of their diet consists of cereals whilst the consumption of protein food is negligible.

The productivity of both land and labour is extremely low on these holdings. The average productivity of labour is poor, partly because the total output of a holding is small and partly because an excessive amount of labour works on each holding. The labour is under-employed in the sense that the same output could be produced by a much smaller labour force. The marginal productivity of a large section of rural agriculturists is probably zero. They may in these conditions, constitute a drag on production. New ways of securing a living must, therefore, be made available to them either by providing land on colonization schemes or employment in industries other than agriculture.

The low productivity of the land is the result of the primitive capital used by the farmer. Capital here includes the physical equipment and the skill of the operator. The peasant is too poverty-stricken to invest in those aids to production which will raise the yield of his land. His income is so low that the pressure of consumption leaves little opportunity for the accumulation of capital. His production techniques are primitive mainly due to lack of knowledge. On occasions, even if he does gain knowledge of these improved techniques, he is slow to adopt them, as he is conservative and suspicious in his outlook. His behaviour is occasionally well-founded for an innovation must in every respect be a better substitute for the old techniques. The techniques he uses are well-tried and proven, enabling him to wrest some sort of a living, however low, from the land. A careless adoption of a new method can deprive him of the little sustenance he earns and plunge him into more abject starvation and penury. The extension service must demonstrate very clearly leaving no doubts in his mind that a change of technique cannot leave him any worse off than before. The margin available to him is too slender to allow of errors.

The peasant producer is a subsistence farmer. Although he attempts to be as self-sufficient as possible, he is nevertheless compelled to purchase some of his requirements from sources external to his holding. A few of the primary necessities of life have to be purchased. He has therefore to supply himself with money and the only way he can do that is by selling in the market a commodity with some exchange value, such as his labour or more usually, part of his produce. A peasant does not have any direct contact with the consumers of his produce. He is therefore compelled to

deal through a middleman. It is customary to speak of the middleman as parasitic as though he performs no useful economic service while battening on producer and consumer alike. This is not strictly true. A middleman, especially in marketing, provides certain economic services without which the whole marketing process will break down ; some of these are the bulking, grading, packing and transporting of the produce and making it available at consumer centres. The charges, however, that a middleman appropriates are not commensurate with the services he provides. The producer receives only a very small part of the final sale price, the middleman taking the larger share.

In a village, the middleman is usually the petty trader or the boutique keeper. It would indeed appear that the village trader is the pivot round which the economic life of the village revolves. From him the peasants purchase their requirements. They sell their surplus to him. The trade is often done on a barter basis. The peasant gives a part of his produce in exchange for his purchases. In either transaction the peasant is cheated by the wily trader as both sets of prices are fixed by him to his advantage. The trader also provides credit to the agriculturist. The production period in agriculture is one complete season. The peasant, therefore, purchases his goods on credit until the harvest is in. The interest he has to pay is often exorbitant. Since the trader is in a monopolistic position, and determines the purchase price of the produce sold, the villager is rarely able to meet the interest charges and pay back the capital. If by some misfortune his crop should fail, the burden of his debt may become permanent as he is then caught in a vicious circle. He is unable to obtain a fair price for his produce as he is under obligation to the money-lender and since he gets a low price for his produce he is unable to escape from debt. The solution is to provide an alternative institution from which he can obtain both long and short term credit, as well as buy his requirements and sell his surplus, all at a just and fair price. Only then can the economic condition of the peasant be ameliorated.

Government Policy

THE Government has adopted a comprehensive policy to alleviate the unfavourable conditions discussed in the preceding section. The surplus labour in rural areas is being reduced through the Colonization Schemes and by Governmental incentives for the development of non-agricultural industries. In addition the improvement of peasant agriculture and of the

standard of living of the villagers is to be achieved by (i) raising the productivity of the land ; (ii) encouraging the diversification of products ; (iii) providing better marketing facilities ; and (iv) providing services of general benefit. These will each be considered in turn below.

I. RAISING THE PRODUCTIVITY OF THE LAND

Rice is the main peasant product. It is also the most important of our commodity imports. In 1953 Ceylon imported 438,689 tons of rice, at a cost of Rs. 324 million. An additional quantity of 272,956 tons of flour valued at Rs. 164 million was imported in the same year to enable the population to have an adequate cereal intake. The problem facing the country is to substitute with locally produced rice the entire quantity of imported rice and perhaps half the quantity of imported flour. This means that instead of the present 450,000 tons of locally produced rice, our output should rise to slightly above a million tons. Once this is reached, production must expand by 34,500 tons annually to keep pace with the population increase.

This increased production can be had either by an extension to the acreage or by a rise in yields or by an increase in both. The table below shows that acreages have increased very markedly since 1947.

Paddy—Area, Production and Yield

Year	*Acreage sown with paddy*	*Total Production of paddy ('000 Bushels)*	*Yield Bushels per acre*	
			Maha	*Yala*
1947	926,683	16,700	24	21
1948	979,042	18,700	24	24
1949	1,108,732	23,100	27	27
1950	1,030,052	22,000	28	25
1951	1,175,764	22,000	25	27
1952	1,078,235	28,900	31	31
1953	1,163,389	21,900	26	28
1954*	1,262,542	31,200	30	30

* Provisional.

The acreage sown has increased by over 300,000 between 1947 and 1954. Owing to climatic and other reasons the entire area cannot be cultivated during each of the two seasons. The figure for acreage sown represents the total of the acreage cultivated for both seasons. An improved irrigation system will enable a larger extent of the present asweddumized acreage to be cultivated bi-annually.

The efforts made to raise yields these last few years are clearly bearing fruit. In Maha 1947, the yield per acre was 24 bushels per acre and in the Yala season of the same year 21 bushels. In 1954, in both seasons the yield per acre was 30 bushels. If such progress is maintained, an average of 40-50 bushels an acre is within reach.

A DIGRESSION ON SELF-SUFFICIENCY

It may be enquired how much closer to self-sufficiency the country would have progressed at the end of this period as a result of the increased acreage under paddy and the schemes designed to raise the average yield. The answer to such a question cannot be given with any degree of exactitude as it depends on so many uncertain variables. A calculation for purely illustrative purposes has, however, been made to demonstrate, on various assumptions the residual import requirements at the end of the period. It must not be interpreted as a forecast. The calculation appears on page 205.

The two main variables that have to be estimated to determine the quantity of imports required are the total domestic consumption and the total production of rice each year. The first is obtained by multiplying each year's estimated population by an annual consumption figure of 226 lbs. of rice per head, which corresponds roughly with the 1954 consumption of rice per head. Total cereal consumption is of course higher than this. Domestic production of rice is obtained by adding to the acreage sown for the 1954 harvest, the additional acreage that will be provided with irrigation facilities each year under the programme. Two further assumptions are that the whole of this acreage will be sown in the Maha Season and 65 per cent. of it in the Yala, and that 83 per cent. of the acreage sown is harvested, the balance suffering crop failure due to some reason or other. This gives an estimate of the acreage that will be harvested yearly. Four estimates of total production have been made, each one based on differing rates of increase in the yield per acre. In the first estimate the yield is expected to rise at the rate of 1 bushel per acre per year, while the fourth assumes an increase of 3 bushels per acre annually.

It will be noticed that even with an annual rise in yield of 3 bushels per acre, 156,000 tons will have to be imported if the present per caput consumption of rice is to be maintained. This demonstrates the degree of effort required, if self-sufficiency is to be attained.

Estimated Production and Residual Import requirements of Rice

	1954	1955	1956	1957	1958	1959	1960
Estimated population (No.)	8,385,000	8,576,000	8,832,000	9,089,000	9,344,000	9,600,000	9,856,000
Estimated total consumption of rice (tons)	845,000	865,000	891,000	917,000	943,000	969,000	994,000
Residual Import requirements on basis of present production (tons)	395,000	415,000	441,000	467,000	493,000	519,000	544,000
Estimate of harvested acreage inclusive of additional extents in programme (acres)	1,050,000	1,077,000	1,107,000	1,136,000	1,172,000	1,199,000	1,222,000
Estimated Production from above acreage with—							
(*a*) assumed annual increase in average yield of 1 bushel yield per acre (tons)	450,000	477,000	506,000	536,000	569,000	600,000	628,000
Yield per acre (bushels)	30	31	32	33	34	35	36
Residual Import requirements (tons)	395,000	388,000	385,000	381,000	374,000	369,000	366,000
(*b*) assumed annual increase in average yield of 2 bushels per acre (tons)	450,000	492,000	538,000	584,000	636,000	685,000	733,000
Yield per acre (bushels)	30	32	34	36	38	40	42
Residual Import requirments (tons)	395,000	373,000	353,000	333,000	307,000	284,000	261,000
(*c*) assumed annual increase in average yield of 2–5 bushels per acre (tons)	450,000	500,000	554,000	609,000	670,000	728,000	786,000
Yield per acre (bushels)	30	32·5	35	37·5	40	42·5	45
Residual import requirements (tons)	395,000	365,000	337,000	308,000	273,000	241,000	208,000
(*d*) assumed annual increase in average yield of 3 bushels per acre (tons)	450,000	508,000	569,000	633,000	703,000	771,000	838,000
Yield per acre (bushels)	30	33	36	39	42	45	48
Residual import requirements (tons)	395,000	357,000	322,000	284,000	240,000	198,000	156,000

It is hoped to achieve increase in yields by—

(*a*) the evolution of more high-yielding purelines by intensive research ;

(*b*) encouraging the use of organic and inorganic manure ;

(*c*) encouraging the adoption of modern cultural practices ;

(*d*) providing additional irrigation facilities by restoration and repair of minor irrigation works ;

(*e*) providing additional irrigation facilities by construction of wells.

(*a*) *High yielding strains*

Some success has already been achieved in popularising pureline varieties of which about 40 have been established. Two varieties, particularly, Ptb 16 and Mas, both introductions from abroad, have proved satisfactory and are gaining ground. The acreage under pureline in Maha 1952-53 was 51,020. Yields in the Wet Zone with its different soils and abundance of water are still on the low side for want of proper varieties of seed. Future research on paddy will be concentrated therefore on evolving suitable purelines for the wet zones. Reports of experts on rice breeding have underlined the need for a fully-fledged paddy research unit and Government has accepted this recommendation. The Institute will undertake both fundamental research on the production and processing of rice and also maintain close contact with the individual producer. This will ensure that the results of the research will be available to cultivators and that the problems facing the farmer will be made known to the research workers. The main lines of research would appear to be on imported varieties, weed control, better crop husbandry, plant nutrition and control of pests and diseases. It is tentatively proposed to establish this Institute in 1956-57.

(*b*) *Fertilizers*

A scheme for the issue of paddy fertilizers on a subsidized basis has been in operation since 1951. The manure is supplied to paddy producers at two-thirds the cost, the Government bearing the residual cost. Last year manure sufficient for 162,000 acres was issued. The cultivator has now realised the importance of fertilisers in ensuring higher yields. It is proposed to continue this scheme throughout the six-year period. This project

has been allotted Rs. 4,250,000. The intention is to make the manure habit catch on sufficiently so that the removal or lessening of the subsidy might not lead to the abandoning of the use of fertilizers.

(c) *Improved Techniques*

The adoption of improved cultural methods is a matter for the extension service. This service has operated more effectively in the last few years, and the spread of improved cultivation methods amongst paddy growers has been substantial. If the extent of paddy land reported to have used these techniques are compared, the progress made is obvious.

Area cultivated with Improved Techniques

Type of technique	*Area (Acres)*	
	Maha 1950-51	*Maha* 1953-54
Selected seed	24,225	146,422
Improved tillage	41,772	186,862
Artificial fertilisers	Negligible	96,403
Transplanting	17,864	45,267
Harrowing for weed control	5,884	40,037
Hand weeding	41,731	121,648

Source : Report of the Rice Commission.

Further popularisation of these techniques will be achieved when model farms in charge of Agricultural Instructors are established at central places in each District. Cultivators will then be able to see for themselves the higher yields obtained by these methods. A start has also been made with the Japanese methods of intensive culture.

(d) *Minor Irrigation Works*

Adequate water and complete control in its use is the key to high yields in rice production. There are a large number of abandoned minor irrigation works sited all over the country whose restoration would help in extending the acreage and raising the yield of paddy. These works are not all tanks but include other devices such as anicuts across small streams. Their restoration has now being going on for some years. It is proposed to continue this work during the plan period at an annual rate of exper-

diture of Rs. 2,000,000. About 4,000 acres per annum is expected to be brought under cultivation. Although the acreage is small, the scheme helps in rehabilitating the peasantry in the neighbourhood.

(e) *Wells*

Self-sufficiency in subsidiary food crops such as onions and chillies can be achieved without too much difficulty. The production and output of these two crops have been expanding over the last few years.

Chillies and Onions—Area and Production

Crop	*Area (acres)*			*Production (cwts.)*		
	1950	1951	1952	1950	1951	1952
Chillies	24,290	23,948	32,948	239,047	291,344	317,303
Onions	7,704	8,205	14,493	294,476	274,442	432,074

Source : Statistical Abstract, 1954.

One of the impediments to increased production is the lack of irrigation for these highland crops.

A subsidy varying between Rs. 250 and Rs. 600 has been given to cultivators for some time now to meet part of the cost of construction of wells. In the Jaffna District alone about 2,000 wells have been sunk. Construction of more wells where underground water is available within 30 feet will help to increase the cultivation of subsidiary crops and thereby reduce a large number of our imports. Over the six-year period it is estimated that Rs. 2,000,000 will be spent for the construction of wells.

II. DIVERSIFICATION OF PRODUCTS

There are certain other crops grown on a small scale in the Island which show possibilities of further development. There is, moreover, scope for improvement in animal husbandry. The development of these subsidiary crops and the improvement of the present levels of animal husbandry are provided for in the Programme. These projects will eventually broaden the base of peasant production. The villagers will be less dependent on cereal cultivation, with consequent improvement both to their nutrition and income. Further advantages are that under-employment will be considerably curtailed and the instability of income reduced. In rice growing there are long periods of inactivity during the maturing of the crop. This slack can be taken up by paying attention to other products with

an even labour requirement. Rice cultivation is also fraught with considerable risk, dependent as it is on rainfall and weather. Subsidiary crops provide a buffer to a complete loss of income.

(a) COTTON

There is at present no textile industry of any size in Ceylon, but the Programme includes provision for development in this direction. There are, of course, handlooms worked on a cottage scale and a good deal of yarn has now to be imported. Cotton was once grown successfully in Ceylon and is now grown on a small scale in the Hambantota District. Cotton growing has to expand if the existing and proposed textile projects are to operate to the good of the economy. Cotton growing has suffered in the past for want of scientific knowledge as to the suitable varieties and the methods of growing. The recommendation of the World Bank Mission that the assistance of the Empire Cotton Growing Corporation should be sought in securing for a short period the services of an experienced technician to train local staff in various aspects of cotton production is to be pursued. With this assistance it is proposed to improve the research facilities already available at the departmental cotton station at Hambantota. Experimentation is in progress as to the suitability of the North-Central Dry Zone for Cotton.

(b) TOBACCO

Ceylon imported in 1953 mostly from the United States of America about 1,600,000 lbs. of unmanufactured tobacco at a cost of Rs. 6,000,000. Manufactured beedi is also imported, mainly from India, at a further cost of Rs. 8,000,000 per annum. The proposed programme of tobacco development attempts to implement the recommendations of the Tobacco Commission (Sessional Paper XVII of 1952) and thereby reduce these imports to negligible quantities.

The extents cultivated at present with the different types of tobacco are—

Type of Tobacco	*Extent (Acres)*
Cigarette tobacco	3,000
Beedi tobacco	25
Mild Cigar tobacco	7,000
Malayalam Chewing tobacco	2,500
Strong Cheroot tobacco	1,500

Cultivators are to be encouraged to expand the area and at the end of five years it is hoped that the following extents will be cultivated :—

Type of Tobacco	*Extent (Acres)*
Cigarette tobacco ..	.. 12,000
Beedi tobacco	.. 2,000
Mild cigar tobacco ..	.. 7,000

Chewing and Strong Cheroot Tobacco are to be replaced by cigarette and beedi tobaccos as the former two types are fast losing their demand.

At present the manufacturing companies provide the necessary facilities for the construction of flue curing barns and other curing sheds. Under this arrangement the development of this crop is slow. Tobacco growers will therefore be given loans through Co-operative Societies for construction of flue curing barns and for the cultivation, curing and marketing of tobacco. Altogether Rs. 3,300,000 has been earmarked for this undertaking in the investment programme ; Rs. 2,300,000 is for the construction of barns and Rs. 1,000,000 as financial assistance to cultivators for the cultivation, curing and marketing of the crop.

(c) HORTICULTURE

Horticultural research has also to be pursued with vigour as it has been found that Ceylon can produce a much larger quantity of fruits, particularly of the citrus variety, than it is doing at present. The lack of equipment for irrigation has in the past handicapped citrus growing in the Dry Zone. Spray irrigation plants and pumps suitable for this purpose will have to be obtained to overcome this handicap. The intensification of horticultural research is also provided for in the programme.

(d) PASTURE AND FODDER CULTURE

The World Bank Mission rightly deplored the absence in the Department of Agriculture of facilities for agrostological research. The promotion of intensive work on pasture and fodder grasses at Maha Illuppalama in the Dry Zone is proposed. As animal husbandry should be developed side by side with crop husbandry in order to increase crop production, pasture development is important for general agricultural development. Incidentally, it would also help in livestock improvement and consequently in the

increased production of dairy products and meat. Research on pasture which is already in progress will be continued on an expanded scale in this period.

(e) ANIMAL HUSBANDRY

(i) *Stock improvement*

The main problem in respect of animal husbandry in Ceylon is the existence of a large number of cattle of poor breeds. Most of these contribute little to the milk supply of the country and are utilised only for meat. Considerable work has already been done in connection with the upgrading of Ceylon's stock, but a good deal more still remains to be done. Genetical research is already in progress and this has to be intensified in order to evolve the correct breeds that will prove to be most economic under our climatic conditions. To ensure the wholesome supply of cheap milk the programme envisages the breeding in departmental farms of high grade cattle for distribution among cattle breeders, the gradual elimination of poor breeds, and the prevention and control of diseases. Other measures like making available animal feeding stuffs at reasonable prices are also proposed.

It is also proposed to start a Goat and Sheep farm, as a pilot project at Polonnaruwa. The present number of local goats and sheep is insufficient to meet the country's needs and goats have to be imported from India. Such goats can easily be carriers of disease. As suitable goat feed is available locally, there is no reason why the country should not be self-sufficient in mutton. The proposed farm will concentrate on breeding high-quality herds which will be made available to breeders.

(ii) *Veterinary Research*

Expansion in the number and quality of the livestock can however be nullified through outbreaks of disease. Certain disease like Foot and Mouth, Anthrax, Black Quarter and Raniket are endemic and cause a serious economic loss to the country. Poultry breeding too has suffered in the past owing to inadequate control of disease. To combat these endemic diseases, the scale of veterinary research is to be expanded, especially through the establishment of a well-equipped veterinary laboratory. Rs. 1,225,000 is to be utilised in this period for combating endemic livestock diseases and for the promotion of veterinary research.

III. IMPROVEMENTS IN MARKETING

(a) THE VEGETABLE AND EGG MARKETING SCHEME

The Marketing Department under whose aegis most of these proposals fall was set up to develop the orderly marketing of agricultural produce by assisting the local producer to obtain a fair price for his products, and to afford these products steady marketing facilities thereby promoting increased local production and its sale at reasonable prices. Prior to its establishment, all the marketing functions were performed by Commission Agents and private traders.

The Department has set up collecting centres where the marketable surplus of the villagers is bulked. Departmental vans traverse pre-arranged routes on fixed days of the week and take over produce from individual producers and Co-operative Agricultural Production and Sales Societies. The routes that the vans are to take and the buying prices of the various vegetables are circulated in advance. Prices to be paid are fixed by a District Consultative Board. The produce is then taken to the Centre where it is bulked, graded, packaged and despatched to centres of consumption. At these centres, the produce is sold either through one of the Marketing Department shops or occasionally to wholesalers.

This organization has proved very successful and as shewn in the table below the quantity of produce bought by the vans has risen.

Quantities of Fruit and Vegetables purchased by the Marketing Department

Commodity	1951	1952	1953
Fruit (No.) ..	.. 16,733,773	.. 24,423,473	.. 24,658,567
Vegetables (lbs.) ..	.. 5,083,492	.. 7,285,514	.. 8,857,847

Source : Administration Reports of the Commissioner for Development of Marketing.

A scheme worked on somewhat similar principles is the Egg Marketing Scheme. In 1954, 4,692,796 eggs were collected mainly from the coastal area. The price paid to producers compares quite favourably with the retail price of imported eggs.

During the six-year period these two schemes will continue. To increase the scope of their activities, sums of Rs. 50,000 for the Egg Marketing Scheme and Rs. 360,000 for the Vegetable Marketing Scheme have been allocated. This is to be used for purchasing essential equipment such as grading and sorting machines.

(b) CANNING AND PROCESSING

This activity of the Department has shown fair progress over the last few years.

Fruit Canning an d Processing

Commodity	1948	1950	1952	1954
Pineapples (tins)	22,000	45,967	204,489	166,863
Mangoes (tins)	4,824	1,827	44,637	Nil
Jam and Jellies (tins)	—	30,419	8,461	12,736
Fruit Juices (bottles)	—	1,760	18,506	4,519

Source : Administration Report of the Commissioner for Development of Marketing.

Fruits are bought at peak production periods and canned by the Department. To overcome the inadequacy of pineapples, a guaranteed price of 8 cents per lb. including crown and stem has been set. This has been an incentive to producers to increase their output.

A new Canning Factory built at a cost of Rs. 200,000 is almost complete. When this factory is completed, the production and manufacture of these products will increase almost four-fold. Some additional equipment however is still required and Rs. 200,000 has been set aside for this.

(c) MILK

Ceylon's Milk consumption is probably the lowest in the civilized world. In highly developed Western countries like England, Denmark and Sweden, the per capita consumption of milk (including various milk products) is about 40 oz. or more per day. In India, where the average standard of living is lower than in Ceylon, per capita consumption is around 7 oz. per day. The corresponding figure for Ceylon has been officially estimated at 1½ oz. A dietary survey carried out in 1941 revealed that of 4,000 families surveyed only 33 drank any milk at all. Unless and until the country's milk supply is increased substantially, our plans to improve the health and physique of our people are doomed to failure.

The Milk Board, set up by the Milk Act, No. 12 of 1954, has drawn up a number of schemes for increasing the production and improving the distribution of milk in the Island. Although the present state of animal husbandry is not satisfactory, the existing milk potential is fairly high, and, given the necessary incentive, a much larger quantity of milk can be produced than before. The Milk Board's schemes are based on encouraging

production in the rural areas of the Island and improving distribution in the urban areas. The Island's coconut and tea estate areas are rich potential sources of milk. Estates have, however, neglected milk production in the past as they lacked an assured outlet for their milk. The Milk Board now proposes to buy the milk the estates produce at a guaranteed price and set up a network of milk collecting centres in the principal tea and coconut growing areas. The first two centres under this scheme have already been built at Gampola in the tea area and Nattandiya in the coconut area. Besides these estate areas, there are certain rural areas which are also rich potential sources of milk. One such area is Polonnaruwa in the Tamankaduwa District. Some of the finest pasture land in the Island is to be found on the banks of the Mahaweli Ganga in this district. The Milk Board proposes to exploit these possibilities and to establish collecting centres in such areas. This project has been allocated Rs. 1,600,000.

The present arrangements for the distribution of milk in the principal urban areas of Ceylon are most unsatisfactory. At present every dairy owner is his own distributor. It is not desirable in the interests of the producer or consumer that this system should continue. The Milk Board proposes to handle the processing and distribution of milk in Colombo and other principal urban areas of the Island. It will either set up its own distributing organizations for this purpose or use the services of subsidiary agencies such as co-operative milk unions or local bodies. Rs. 800,000 has been earmarked for this project.

The prices at which pasteurized milk will be sold under these distribution schemes will be considerably less than the price at which it has been sold in the past. Pasteurized milk of guaranteed quality has been sold by private firms at 80 cents a pint. Under the new scheme the Milk Board proposes to fix a price of 55 cents in Colombo, which may be reduced even to 50 cents after experience has been gained. In Kandy and other urban centres a price of 45 cents or less per pint is possible.

While pasteurization improves the keeping quality of milk, it is not possible to store pasteurized milk without refrigeration for over 24 hours. It is not therefore possible to organize a distribution scheme for pasteurized milk in rural areas. Modern techniques have, however, been developed for sterilizing milk which enables bottled milk to be stored without refrigeration for weeks. The Milk Board has made arrangements to establish a milk sterilization plant in Colombo with a capacity of 1,000 gallons a day. This plant costing Rs. 1,500,000 should be in operation before the end of 1956. It is hoped to sell sterilized milk at 45 cents a pint. This plant will be expanded later to handle 2,000 gallons of milk a day before the end of the six-year period.

Most of the milk now consumed in the City of Colombo is produced in a large number of comparatively small dairies situated within the City. In these dairies cattle are kept in congested and insanitary stalls and milking is carried out under unhygienic conditions. It will take many years to reach the very high standards of care and cleanliness which are imposed by law on milk producers in Western countries. But a beginning can now be made. The Board has now drawn up plans for the establishment of two dairy colonies in the outskirts of Colombo, to be run on the same lines as the Aarey Milk Colony of Bombay. These colonies to be built at a cost of Rs. 1,300,000 will be situated at Welisara and Narahenpita. Special cattle sheds, quarters for labourers and milkers, generous supplies of water, and veterinary services will be provided at these colonies for a fixed monthly rental. The milk produced in these two dairy colonies will be purchased for distribution by the Board at a fixed price.

(d) GUARANTEED PRICE SCHEME

Guaranteed forward prices for some commodities have been fixed by the Government. The most important of them is the guarantee to purchase paddy at Rs. 12 per bushel until 1957. This is extremely favourable to the producer as the present price of paddy in India is about Rs. 4 per bushel. This guaranteed price has been one of the most potent factors in increasing production.

The collection of produce under the Scheme is made through Co-operative Agricultural Production and Sales Societies. The quantities collected in 1953 and 1954 are given below.

Quantities collected under the G. P. S.

Commodity	1953	1954
Paddy (Bushels)	332,037 ..	3,615,169
Rice (Bushels)	151,382 ..	2,415,806

The increase in the quantities collected should not be interpreted as an increase in the quantity produced. In 1954 the market price of paddy which had previously been consistently above Rs. 12 per bushel, declined below this figure. As long as the market price was above the guaranteed price,

producers naturally sold it on the open market. But with the price decline in the open market purchases under the Guaranteed Price Scheme soared. This created a serious storage problem. Storage facilities are now being rapidly provided. When this additional space becomes available, one of the main problems in the smooth working of the scheme will be eased.

Facilities for milling the rice have to keep pace with the increased collection. The present rice mills and hullers need much improvement to ensure a better out-turn and quality of rice from the paddy milled. Parboiling and drying facilities too are most inadequate. Normally the mills and hulling plants should have facilities to process into parboiled rice two-thirds of the total quantity received. The present parboiling plants are most inefficient and have a life span of only 5 years. Rs. 1,500,000 has been allotted for improving the parboiling and drying facilities and also for equipment for the better sifting of the bran produced in hullers.

(*e*) IMPROVEMENTS TO THE SALES ORGANIZATION

The produce purchased by the Marketing Department is sold through Departmental Shops. One of the main shops is at the Old Town Hall Market. Here not only does the Department retail its wares but also accommodates other small traders who have hired stalls. The building is extremely old and is proving inadequate. It has therefore been decided to put up a new building in the place of the old structure, utilizing to the fullest extent the land space available. Rs. 1,450,000 is to be spent on this project.

A similar project is the redesigning of the Chatham Street shop. This shop is the main sales centre for local handicraft wares. The goods are bought from craftsmen at fair prices and sold to the public at prices much cheaper than those demanded by curio dealers. The shop has proved popular with foreign visitors and tourists. The design and layout of the shop, however, have remained without material alteration. Rs. 175,000 is to be used for redesigning the layout and modernising the appearance of the shop and for advertising more attractively local handicrafts and cottage industry ware.

(*f*) MISCELLANEOUS PROJECTS (MARKETING DEPARTMENT)

The other projects in this field relate to the normal activities of the Marketing Department. There is provision for improvements to the kitchen and bakery buildings and for the purchase of equipment. Administration

buildings and quarters for the District Assistant Commissioners have also been provided for. These miscellaneous projects are estimated to cost Rs. 3,600,000.

(g) THE CO-OPERATIVE MOVEMENT

Outside all these activities and yet impinging on them all is the co-operative movement. Co-operation has a particularly important role to play in our economy in its present state of development. This role is in no way lessened because of errors and omissions on the part of co-operators.

In the traditional economic order the producer and his family formed the production unit, working at home and catering to the needs of particular consumers. Modern production on the other hand presents the producer with altogether new circumstances of a continuous and large competitive market with a changing pattern of demand in terms of which he must direct his efforts. The simple relationship between the producer and the consumer has been replaced by a complex system with innumerable specialized functionaries. The induction of the traditional producer to modern production and the modern market has to be either by the creating of partnerships, joint stock enterprises (in which he may be owner, worker or both) and co-operative societies. The last named is the most suitable form of economic organization for him.

Through co-operatives he can expand the scale of his production, introduce new techniques and superior capitalization, secure his finance and provide both for the purchase of raw materials and the sale of finished products. At the same time, in his co-operative he remains master of his own destiny and preserves most of his cherished social values. In the co-operatives he can combine modern enterprise with his moral values of self-help and mutual help.

The co-operative way, then, has to be promoted and preserved, using it to give the members not only a higher annual income but also a greater degree of leisure due to a rise in his productivity.

The Co-operative Movement in Ceylon has already taken such a hold on the minds of the community that it is sometimes regarded as a panacea. Co-operation has consequently spread to the most diverse activities, so much so that the Commissioner and Registrar of Co-operative Societies takes pride that there are 77 varieties of societies. In 1953 there were 8,940 societies. The rate of expansion in recent years was exceedingly high. Consolidation of the existing societies is now more the policy. The basic data relating to the present situation is given in the table appearing on page 218.

Statistics on the Co-operat ve Movement

Type of Society	Number of Societies			Membership			Working Capital* (Rs.' 000)		
	1951	1952	1953	1951	1952	1953	1951	1952	1953
Primary									
Credit Societies unlimited liability	2,235..	2,366..	2,535..	75,317..	79,469..	85,354..	5,926..	6,860..	7,676
Credit Societies limited liability	127..	129..	136..	10,971..	11,544..	13,092..	2,142..	2,634..	2,654
Thrift	305..	320..	333..	41,828..	43,889..	44,935..	6,232..	6,480..	7,556
Retail Stores Societies ..	3,414..	3,408..	3,369..	850,575..	880,827..	873,823..	14,870..	15,998..	16,323
School Co-operative Societies..	548..	793..	953..	59,169..	82,808..	100,494..	188..	238..	282
Marketing and Production Societies	710..	902..	1,255..	128,082..	142,519..	201,785..	19,801..	23,859..	31,630
Land Mortgage Banks ..	1..	2..	1..	49..	76..	25..	7..	7..	1
Transport Societies ..	22..	20..	20..	6,178..	10,456..	6,783..	478..	631..	621
Other types	62..	78..	98..	12,796..	15,711..	17,997..	1,050..	1,949..	3,171
Secondary									
Provincial Banks ..	9..	9..	9..	4,576..	4,880..	4,866..	18,601..	22,253..	19,558
Stores Societies Union ..	97..	98..	99..	3,298..	3,263..	3,131..	6,834..	7,453..	10,170
Marketing and Production Unions	12..	22..	33..	186..	600..	608..	1,898..	2,958..	6,661
Credit Unions ..	78..	81..	85..	1,648..	1,679..	1,419..	3..	2..	3
Provincial Unions ..	9..	9..	9..	3,564..	3,665..	3,797..	51..	70..	68
Award Unions ..	2..	— ..	— ..	30..	— ..	— ..	— ..	— ..	—
Other Unions.. ..	— ..	1..	4..	— ..	168..	22..	— ..	21..	18
Co-operative Federal Bank of Ceylon	1..	1..	1..	1,182..	1,191..	1,185..	5,786..	6,484..	10,312
Total ..	7,632	8,239	8,940	1,199,449	1,282,745	1,359,316	83,867	97,897	116,704

*Working capital = Share capital (Paid up) *plus* statutory Reserves and other funds *plus* loans and deposits.

Source : Administration Reports on the Working of Co-operative Societies.

This rapid expansion had had some unfortunate repercussions on the Movement. The standards of book-keeping and honesty are not as high as they ought to be. The Movement should concentrate on improving the quality more than on increasing the number of societies. In extenuation it must be said that the Department is called upon to implement the policy of other departments through some form of co-operative organisation, especially when loans for some particular purpose are being given to a section of the community. Since a prior condition to the obtaining of a loan is membership in a co-operative society, membership is motivated more by the desire for securing the loan than for following the co-operative principles.

For the Movement to flourish, all those who are working in it must be fully conversant with co-operative principles and ideas. Co-operative Education and Propaganda is the prime necessity. A Central School of Co-operation is being built at Polgolla near Kandy. Field Officers of the Co-operative Department of whom there are about 1,500; hundreds of Office-bearers and employees of Societies; Food Production Overseers; Officers of the Rural Development and Cottage Industries Department; and Divisional Revenue Officers are being trained at this School. This School has in addition built for itself a name outside Ceylon. Training has been imparted to Co-operative Officers of other Governments too. As stated earlier co-operation is being extended to new fields. Co-operatives for Fishermen, for house building and for Cottage Industrial Workers are being established. Past experience has shown that the pace of the Movement should not be forced unless trained persons are available to man the Co-operative Societies as office-bearers and employees. The scope of Co-operative Education and training therefore needs considerable expansion and it is proposed to establish additional training centres in other provinces.

The oldest type of Co-operative in the country is the credit society of unlimited liability. There were in 1953, 2,535 of such societies with a membership of 85,354. The loans given by these societies are almost entirely for productive purposes. Of these, cultivation is the most important; over 50 per cent. of all loans being for this. But all of these are short-term loans of 12-18 months' duration at most. Agriculture requires in addition medium and long-term loans. Short-term loans are useful only for some immediate purpose like buying seed and this should be paid back in full at the end of the season. If however, some permanent improvement to the land is to be effected credit for longer periods must be available.

For some time now certain types of societies have been issuing long-term loans. Agricultural Production and Sales Societies grant loans ranging up to 10 years, Housing Societies up to 15 or 20 years. Certain well-established credit societies too have been permitted to grant medium-term loans repayable in 3 to 5 years. It is proposed, however, to establish Co-operative Mortgage Banks. Such banks have been functioning in other countries with success and have proved a boon to the rural population. These banks should reduce the degree of rural indebtedness. The banks should, in addition, enable agriculturists to obtain loans which they have hitherto been prevented from doing on account of unsatisfactory title to land. In the present state of the economy in this sector one cannot expect such banks to be started from the people's savings and it would be necessary therefore for the State to finance them for an initial period. Within the six-year period Rs. 350,000 is to be used for this purpose.

There are other and new directions in which Co-operative Development can proceed and bring benefits to the rural population. The plan provides for a sum of Rs. 750,000 during four years for such purposes. One valuable step in securing efficient production in the rural areas is the consolidation of small-holdings. Scattered and fragmented holdings are a hindrance to efficient production. In the North-Central Province, for example, several hundreds of such holdings are found not only in the same village but in a number of villages. Indian experience has clearly shown that the cultivator readily falls into line with a scheme which, after careful inquiry, will assure a consolidated block in one locality in lieu of a multitude of scattered holdings in different localities.

The other investment proposals of the Co-operative Department relate to buildings for the Inspectors and Sub-Inspectors. The buildings in which the Co-operative Department is now housed are unsatisfactory. The construction of new buildings is to be started in the near future. Rs. 4,980,000 has been earmarked for these building schemes.

IV—THE PROVISION OF SERVICES OF GENERAL BENEFIT

AGRICULTURAL EDUCATION

Agricultural education imparted under the auspices of the Department of Agriculture is of two types. There are two schools, one for boys and the other for girls, which provide for a two-year course in general agriculture. The students passing this course are considered fit to take up work in the plantation industries. Many of them are recruited as Agricultural Instructors in the Department of Agriculture or as Food Production

Officers in the Department of Food Production. The other course is of one year's duration and is provided in about 13 residential schools in different parts of the Island.

The new plan for Agricultural Education contemplates the provision of one residential school for boys and one for girls in every province. Instructions given in these schools will be of a purely practical nature calculated to fit the students for work on the land. Apart from the residential farm school it is also proposed to open a number of day schools in several districts at which practical training will be imparted to day scholars. If the pace of land development is stepped up, it is considered that the trainees of the residential schools and day schools will be fitted to become colonists of new land. The expenditure of Rs. 1,850,000 to be incurred on Agricultural Education is in connection with buildings and equipment for these schools.

AGRICULTURAL ENGINEERING

Although tractor ploughing is practised in Ceylon only on a small scale, the efforts made by the Department of Agriculture and the Department of Food Production to infuse into the cultivator enthusiasm for mechanised cultivation has borne some fruit. Many a cultivator now realises the economy of tractor ploughing. Provided the initial difficulties experienced by reason of unsuitability of machines or of terrain are overcome, there is little reason to doubt that tractor ploughing will increase in popularity.

The Department of Agriculture requires a certain number of tractors for its State Farms, and in addition to these, has been running tractor stations in different parts of the Island for the benefit of the cultivator. Now that private parties have begun to buy and hire tractors, it would not be necessary for the Department to maintain tractor stations. These will be gradually given up, but the employment of machines in State Farms will continue, not only for ploughing but also for other operations. The object is to secure more efficient cultivation and also to serve the purpose of demonstration.

It is also considered necessary for the Department of Agriculture to undertake research into implements of cultivation suitable to our conditions. Many types of agricultural implements imported to this country are not altogether suitable. As manufacturers abroad are reluctant to develop special implements for so small a market, this adaptation has to be effected here. Some of these implements could easily be fabricated here in small quantities quite cheaply. In this work the Department will be helped by the recently constituted Advisory Board on Mechanization.

As mechanized cultivation is relatively new, operators and other staff have to be trained in these techniques. Provision of training courses in this subject is to be continued during the six-year period.

SOIL CONSERVATION

Soil Conservation work has already been started in the Kotmale area in pursuance of the Soil Conservation Act. It is contemplated to extend this work to other areas too. Much investigation has, however, to be done prior to the commencement of actual soil conservation work. Financial assistance is very necessary if the indigent peasants are to undertake soil conservation measures. On an average small-holding such measures are estimated to cost Rs. 200 per acre. The Government intends to assist them by meeting part of this cost.

MEDICINAL HERB FARM

Complaints have been made from time to time regarding the scarcity of herbs and roots commonly used by Practitioners of Ayurvedic Medicine. No systematic attempt is made anywhere in the Island to encourage the growing of these valuable medicinal plants. It is therefore considered necessary that the Government should undertake their cultivation and distribution among Ayurvedic Practitioners.

FOOD RESEARCH INSTITUTE

The idea of a Food Research Institute for Ceylon was mooted about five years ago when we were still short of adequate supplies of cereals, and protective foods like meat and milk were high in price. The object was to survey the adequacy of food consumption levels of the different categories of consumers and evolve suitable diets which would include locally grown foods like millets, yams and leafy vegetables. Although the cereal supply position has now vastly improved there still remains the problem of balanced feeding and an economic diet. A Food Research and Nutrition Council has been set up to advise the Ministry of Agriculture and Food on current nutritional problems. There is at present a Government Free Milk Feeding Scheme started during the war in order to overcome malnutrition among children. It is considered that a Food Research Institute would do useful work by carrying out periodical surveys of the nutritional state of the people and advising on improvements that are needed in the diets, in the preparation of new forms of food and the utilisation on an increasing scale of foods that are easily grown in the country.

CHAPTER 5

FORESTRY

IT is estimated that the total area of forest in Ceylon is approximately 3.5 million acres. Of this 2,762,467 acres are in the charge of the Forest Department ; nearly 50 per cent. of this extent form constituted Reserves.

The table reproduced below shows the relationship between the land area, Reserved and Proposed Reserve and the population in each province.

Population, Land Area and Forest Reserves in 1946

Province	*Total land area (acres)*	*Population*	*Reserves and proposed Reserves (acres)*	*Proportion of Forest expressed as per cent. of land area*	*Area of Reserves per capita (acres)*
Western	903,904	2,231,820	67,588	7·4	·03
Central	1,465,632	1,366,596	123,198	8·3	·09
Southern	1,362,360	1,130,014	141,348	10·4	·12
Northern	2,146,453	571,214	555,638	25·8	·97
Eastern	2,376,144	355,231	910,876	37·07	2·56
North-Western	1,914,960	854,915	350,047	18·1	·4
North-Central	2,546,160	229,174	495,151	19·7	2·11
Uva	2,096,416	468,835	20,015	9·5	·04
Sabaragamuwa	1,211,200	890,838	96,606	7·9	·01

The distribution of population in relation to forest area and land area is very unsatisfactory. Extensive areas in the Dry Zone are underpopulated, and in the Wet Zone the position is reversed. Within the next decade or two the position will improve in respect of the distribution of population in the Dry Zone but this will, it is expected, involve the excision of large areas of forest from Reserves and Proposed Reserves in the Northern, Eastern and North-Central Provinces, bringing down the percentage of reserved forest per capita in the Eastern, Northern and North-Central Provinces.

It is necessary at the outset to assess the Island's requirements of timber per annum based on present consumption figures and likely future trends, and estimate whether the available timber stands in the Reserves and

Proposed Reserves will be capable of producing a sustained supply. It is estimated that the Island's consumption of timber for agricultural, domestic and industrial purposes are as follows :—

Estimated Annual Consumption of Timber

	Cu. ft.
1. Timber for construction purposes	2,000,000
2. Industrial requirements—plywood chests ..	2,000,000
3. Village requirements	750,000
4. Railway sleepers	650,000
5. Furniture woods	500,000
6. Other uses (poles, posts, &c.)	100,000
Total ..	6,000,000

From this data the consumption of timber per capita per annum would appear to be less than 1 cubic foot, while the average for the world population is 21 cubic feet. In more highly developed countries it is much higher than 21 cubic feet and the highest is in America which is 225 cubic feet per capita. Even though these figures have to be accepted as approximations the timber production and consumption in the Island is far below the average and indicates a poor standard of living. If therefore the bare needs of the future population are to be met the Department has to aim at a target of supplying at least 10,000,000 cubic feet on a sustained yield basis. If, moreover, the living standards of the peasantry and urban workers are to be improved a minimum of 3 cubic feet per capita will have to be provided which will mean an annual output of about 30,000,000 cubic feet per annum on a sustained yield basis. This estimate of 3 cubic feet per annum is not unreasonable as the modified type plan cottage for a colonist requires 15 to 20 cubic feet and the greater part of the population need wood fuel for their cooking.

Development up to 1947

DURING the early thirties, with a view to the establishment of a stable forest policy, forest stock mapping was undertaken for the forests of the Wet Zone. At the same time detailed plans were prepared for the extension and management of the jak and Mahogany plantations of the Intermediate

Zone. Pending the preparation of working plans for the Wet Zone forests, exploitation was confined to other Crown forests which were not required for systematic forestry.

The demand for fuel in the up-country districts led to the artificial planting of quick-growing exotics in selected areas, with the ultimate aim of converting a belt of uneconomic forest into an economic unit of utility and fuel species. Included in the scheme was the afforestation of patna lands and an extent of approximately 950 acres of patna were afforested. The total area reforested under this scheme was 9,004 acres.

An extent of 4,239 acres of jak and mahogany were planted with the assistance of lessees and at no cost to the State under the chena reforestation scheme. These plantations were confined to the Intermediate Zone and to the residual forests in the Kegalla and Kurunegala districts.

Under the same scheme, 6000 acres of teak have been planted in the Dry Zone.

The Present State of Forest Management

SINCE 1947 the forests of the Island have been classified as follows :—

(1) *Protective Forests*—Approximately 507,000 acres, essentially for climatic and topographical reasons. In this category are included *amenity* forests reserved for aesthetic reasons.

(2) *Commercial Forests*—Approximately 1,900,000 acres maintained for timber and other forest produce to meet the demands of the community.

(3) *Domestic Forests*—Approximately 355,000 acres maintained essentially for the supply of timber and fuel for local requirements.

PROTECTIVE FORESTS

(A) PLANTATIONS

Of the original Montane Sub-tropical or Temperate Wet Evergreen forests only about 100,000 acres remain, concentrated in the central Montane country above 5,000 feet elevation. About 3,000 acres of this type of forest was planted since 1914 with cypress and eucalyptus. Since 1940 the conversion of the natural forest over 5,000 feet into exotic plantations has been abandoned for aesthetic reasons, planting being done only in the degraded forests of this zone.

The planting of the grasslands of this elevation (wet patanas) with exotic species such as *Acacia decurrens* and eucalyptus has been pursued since 1950. In April, 1955, the work in the wet patanas has been done on a large scale under the direction of an F. A. O. expert. A tractor was employed in the wet patanas of Pattipola to plough and disc the soil. 300 acres were ploughed at this centre prior to sowing with *Acacia decurrens* and *Acacia mollisima*.

(B) SHELTER BELTS

An extension of this system of planting with exotics has been successfully achieved in the dry patanas between the elevation of 3,500 feet and 5,000 feet. Approximately 3,200 acres have been planted within the last decade. The results to date of growth of trees and improvement of the soil conditions are so satisfactory that provided the land and money is made available most of these patanas could be afforested within the next 10 year period.

(C) AFFORESTATION OF ERODABLE LANDS

In addition to the afforestation of the wet and dry patanas, planting has been done with success in the Kotmale-oya catchment area and Walapana Harasbedda patanas.

COMMERCIAL AND DOMESTIC FORESTS

(A) WORKING PLANS

The working plans prepared in 1937-39 for these forests were revised and prescriptions made out for a further 5-year period. Fellings in the Dry Mixed Evergreen forests are of two types, the first is *selective*, the second is *intensive*. The former works on a girth principle. The latter is a more comprehensive treatment including the removal of inferior species, particularly where there is a demand for fuel. The felling cycle has been fixed at about 30 years. A total of 6,200 acres have been treated since 1950.

(B) REFORESTATION

Since 1950 an effort had been made to increase the reforestation programme and during the 5-year period 1950 to 1954 inclusive, an extent of 8,554 acres of new plantations of teak, jak, halmilla, mahogany and eucalyptus species were added to the existing 30,000 acres.

(c) THE WET ZONE

Treatment of the Wet Evergreen forests has been by regeneration fellings based on "Seeding felling" technique and modified as a result of silvicultural research. Natural regeneration obtained in most forests by this method is very satisfactory. Girdling is resorted to where disposal of firewood is uneconomic. The total extent under regeneration is 59,500 acres.

(D) FOREST UTILIZATION

Imports of timber to the Island are mainly in the form of pine boards and tea chests, sleepers, and teak squares. Exports from the Island are chiefly confined to satin wood and ebony. A comparative study of imports and exports for 1938 to 1954 illustrate the very sudden and important changes brought about during the war years and thereafter. The imports of logs and sawn timber have dropped abruptly to about 1/5 of their pre-war figure. This indicates the volume of timber which has come into the market from the Ceylon forests. In pre-war years the out-turn from the Ceylon forests was in the region of 750,000 cubic feet per annum while in the post-war period the out-turn from the Ceylon forests has been about 2,500,000 cubic feet per annum.

(E) TIMBER SEASONING

Kiln seasoning was done for the first time in Ceylon and schedules for seasoning hora, milla, ranai and mahogany have been successfully worked out. Moisture contents have been reduced from 49 per cent. to 16 per cent. The time taken for these processes has in some instances been long as they were preliminary runs; faster working schedules will be possible in due course. Investigations on seasoning of ebony is also being undertaken to prevent splitting and breaking of articles turned out in this wood. Kiln seasoning reduces the seasoning period from 6 months to 2 weeks. Timber Utilisation Research has made special progress in all directions, ranging from fundamental studies to special investigations. The equipment in the Research Laboratory of the Department has been added to and improved particularly through aid from the Government of the United Kingdom to the value of more than £19,000. The F. A. O. provided the laboratory with an electrically powered band saw at a value of Rs. 40,000.

Programme for the Future

FOR the present the Department's target as was stated earlier is to produce 10,000,000 cubic feet of timber per annum and to achieve this object an intensive programme of forest re-construction is necessary. Due to the

intensive development of the Island for the growing of food and export crops it will be difficult to press for more land to be constituted as Forest Reserves. For this reason reforestation should be with assembled stands of timber species. The problem therefore is one of assembling economically exploitable timber stands in the shortest possible period. Artificial planting has to be done in the Dry Zone, Montane Zone, and Dry and Wet Patanas.

The following programme of work has been formulated in order to achieve this :—

		Expenditure during the six-year period Rs.
Silviculture :		
Cultural operations in the Wet Evergreen forests ; thinnings and clearings in existing plantations ; tree planting campaign		697,000
Afforestation :		
Wet Zone	355,000	
Dry Zone	845,000	
Montane Zone	400,000	
		1,600,000
Working Plans :		
Investigations regarding composition of forests and formulation of schemes for the management of forests with the object of ensuring continuity of policy ..		180,000
Extraction :		
Maintenance of existing roadways and construction of new roads		915,000
Utilization :		
Equipment for portable saw mills, seasoning kilns, open tank impregnation plants at conversion depots		160,000
Research :		
Silvicultural-Botanical study and identification of timber species ; phenological investigations ; ecological work	200,000	
Utilization-Research covering all aspects of timber, their durability, mechanical and working properties, impregnation and seasoning ..	117,000	
		317,000
Accommodation :		
Maintenance of existing buildings and construction of new quarters and offices ..		1,220,000
Total ..		5,089,000

CHAPTER 6

FISHERIES

FISHING is probably the most backward of all our existing industries. Despite being an island with a rich though narrow continental shelf, local production suffices for only about 45 per cent. of total consumption. The balance 55 per cent. has to be imported. Moreover, the consumption of fish is only 17.6 pounds per head a year which contrasts unfavourably with the consumption rates of 70 pounds per head in Burma and 90 pounds per head in Japan. Rich in proteins, vitamins and mineral salts, fish is one of the protective foods. The nutritional level which is low in protein values could be improved considerably through an increase in the consumption of fish.

Objectives

THE overall long-term objective of the Government is not only to make the country self-sufficient in fish at the present level but also to increase consumption by providing larger quantities at lower and more stable prices. Both consumer and producer will benefit thereby. Allied to this is the aim of improving the social and living conditions of the fishermen. They form about 2 per cent. of the gainfully occupied population and their total catch in 1953 was around 24,000 tons. The fishermen are a depressed group in the social framework. Their living conditions are appalling and whatever facilities they enjoy are of a primitive nature. Their poverty allows them to use only the most inefficient boats and gear. Since their equipment is poor, the catch is also poor. A vicious circle is thus created. Poor capital equipment means poor catch and poor catch in turn means that they cannot afford to invest in more modern and expensive gear which will raise their output.

Determination of Fishery Resources

THE first need is to determine the extent of the fishery resources. Sea-fishing must not be carried out so intensively that the future supply is jeopardised. A balance between catch and total supply must be maintained. The increase in production should not be at the cost of over-fishing. There is sufficient indication that large quantities of migrant stocks exist in the

Indian Ocean beyond the compass of indigenous craft and gear. The assessment of this potential and the manner in which it should best be exploited will take years of patient research. Research is proceeding on this project.

Plans for increasing total production

MEANWHILE measures to increase the total production of fish have been placed in the forefront of the programme. This is to be accomplished mainly through the introduction of mechanised craft and improved fishing techniques. The outriggers now in use which depend solely on the winds for motion, limit the fishing grounds to an area near the coastline and parallel to it. If the distance that an outrigger can traverse is increased, a larger area can be exploited. The mechanisation of local craft will effect this. The time spent in actual fishing will also increase as less time will then be required to reach the fishing grounds.

The Government in conjunction with International Agencies such as F. A. O. have carried out experiments to determine whether the existing local craft could be mechanised economically. Mechanisation of the boats used in the Jaffna area have so far shown favourable results. Small diesel marine engines are now used by fishermen there. Experiments in the mechanisation of *orus* used on the Western and Southern sea-boards of the Island are still continuing. The Government is also endeavouring to ascertain whether mechanised foreign craft could be economically operated here. For this purpose selected types of craft from Denmark and Canada are now being used side by side with local boats to determine the relative efficiency of each.

As these experiments proceed and the efficiency of mechanisation is proved the fishermen would wish to invest in this equipment. Their poverty precludes purchase unless they are subsidised. Rs. 2.2 million has therefore been assigned for the granting of loans to registered Co-operative Societies and deserving individuals for such investment. The Government has also received a gift of 40 marine diesel engines from Canada under the Colombo Plan. These will be sold on easy terms to the industry and the proceeds of this sale will be used to further the programme of mechanisation.

The total supply of fish can also be augmented by exploiting the lagoons and the inland waters within the country. There are a number of salt water lagoons around the coast and they are the site of important fisheries even at present. The large tanks and rivers with a continuous flow of water can be an additional source of supply. The lagoons and the inland water bodies are estimated to cover an area of over 400,000 acres. Managed with care they could become a perennial source of fish.

These water bodies are now being systematically stocked with good quality fish under the direction of a F. A. O. expert. He is simultaneously training a team of local officers in this work. As most of these inland water bodies are in rural districts the local demand and the demands of small towns in their neighbourhood could be met with great ease.

There is also the possibility of combining paddy cultivation with fish culture The production of grain and animal proteins would then take place together which would be an ideal method of land usage. A team is now being trained to manage demonstration centres at which the processes involved will be explained to the rural population. The Agricultural Department is co-operating in this project by having demonstration fish culture centres in ponds and paddy fields on their experimental stations.

Experiments are also under way with regard to improving the fishing gear now in use. The hauling of *madels* for example is extremely wasteful of labour, between 20 to 100 men being required to haul a net depending on its size. Government is co-operating with the F. A. O. to devise a winch which would be able substantially to reduce the labour used and enable the pace of the operation to be stepped up. The Canadian Fishery Team is also conducting experiments in order to ascertain whether equipment used in the European and North American sea fisheries is more efficient than equipment now in use in Ceylon and whether the change over to such equipment would be an economic proposition.

Processing and Distribution

THE benefits of development in one section of this industry will be nullified unless complementary services expand in conjunction. An increase in the total supply of fish should keep pace with expansion in the processing and distribution facilities. Efficient transport, freezing and storage facilities must therefore be provided. This will permit the swift transportation of the fish from the centres of production to the centres of consumption without any deterioration in the quality of the product. The fish caught in excess of the current demand could be stored to be released to the market during the periods of short supply. Wide fluctuations in price will not then occur.

Eight insulated refrigerated trucks have been gifted by Canada. They will be used to bring in fish from remote centres like Arippu, Karaduwa, Kokilai, Kalarawa and Nallathanithoduvai which are now compelled to convert their fish into less economic products like dried fish because of

their inaccessibility to markets. Suitable access roads will also be built to link such remote fishing areas with the main roads. Each year approximately Rs. 600,000 will be spent on the construction of these roads.

In heavy seasons the catch of fish is so large that unless storage and freezing facilities are available the fish has to be disposed of at very uneconomic prices. The consumers benefit by this reduction but the income of the fishermen decline. Conversely in times of shortage consumers have either to do without any fish at all or be willing to pay exorbitant prices. If, however, the fish caught in the heavy seasons is stored and released when conditions require it, the consumer obtains his fish at an even price throughout the year and the income of the fishermen is stabilised.

A cold storage plant to hold this fish reserve is being built. Its capacity is to be 500 tons and it will cost Rs. 4,875,000. Of this amount Canada has agreed to meet Rs. 3,625,000 towards the cost of the equipment and technical supervision. The plant will take in for storage, fish brought in by trawlers and vessels operated by private individuals. This plant together with the By-Products Factory will probably be handed over to a Board for management as a commercial undertaking.

A By-Products Factory with Machine Shop attached is also to be established at a cost of Rs. 1,869,000 in the six year period. The factory will use as raw materials fish entrails, shark liver, fish waste, &c., which are now inadequately utilised for lack of proper equipment. It will produce annually 120 tons of dry fish, 60 tons of fish meal, 200 gallons of fish oil and 9,000 gallons of shark liver oil. The attached Machine Shop will ensure that all repairs will be effected expeditiously both in this factory and in the Cold Storage Plant. Delays to the repair of the machinery will be reduced to a minimum allowing the factories to be used to the maximum possible capacity.

The Provision of Services to the Fishing Industry

A MODERN Fishery Harbour is being constructed at Mutwal. The estimated cost of this is Rs. 5.7 million, of which Canada has agreed to contribute Rs. 3 million. This harbour will accommodate the Department's trawlers, research vessels, and other mechanised craft. Mechanised fishing vessels owned by private enterprises can use it as a base for their operations too. As this harbour has been specially designed to meet the requirements of the fishing industry, the turn-round of trawlers and other fishing vessels will be reduced from a six or seven day period to two days. This should increase the total catch and reduce the unit cost of fish.

The Fisheries Harbour will benefit only those vessels whose operating base is Colombo. In a number of areas fishermen find it extremely difficult to procure suitable sites for the beaching of their craft. Rs. 275,000 has therefore been earmarked in the Programme for the provision of suitable beaching grounds wherever necessary. Work will also continue on the improvement of harbours and jetties customarily used by fishermen.

All the measures described above should ultimately ameliorate the standard of living of the fishermen. But a substantial improvement in their living conditions can be effected immediately through the provision of habitable dwellings. Houses for fishermen were earlier considered to be part of the major problem of slum clearance and were therefore the responsibility of the Ministry of Local Government. Housing schemes for fishermen were completed by that Ministry at Karaiyur, Munnakara and Weligama. The Ministry of Commerce, Trade and Fisheries, however, has now assumed complete responsibility for the problem. Rs. 6 million will be utilised during the six year period for the construction of 3,250 houses. These will not be the only houses for fishermen that will be built during this period. The Ministry of Lands and Land Development has agreed to alienate Crown land to the fishermen and to give them the money grants usually given to peasant allottees for house construction. The Ministry of Housing has also agreed to provide funds for the housing of fishermen under its own schemes.

The Programme does not overlook the need for office accommodation and living quarters for the field staff employed in the execution of Government policy. Whilst the limited funds at the disposal of Government have primarily to be directly expended on the fisherman, the indirect benefits to be derived by seeing to the welfare of the field officers have been realised. The decision is therefore to ensure that at least Rs. 150,000 per year is spent on this important work.

Summary

THE measures designed by the Government to meet the present needs of the industry involve on the one hand an increase in production both by the introduction of mechanized craft and improved fishing techniques, and by the stocking of fish in inland waters both brackish and fresh, combined with the instruction of fishermen and farmers in these techniques. The Government also plans to improve the transport, marketing and processing facilities available to the industry. 3,250 houses for fishermen are also to be constructed. All these should result in higher incomes and better social conditions for those engaged in the industry.

CHAPTER 7

INDUSTRIES

Historical

INDUSTRIALISATION in Ceylon is a development of recent origin. As is typical of many under-developed economies, Ceylon had in the past concentrated on the export of a few basic raw materials in exchange for manufactured consumer goods. The Industries Commission, reporting in 1922, summed up the position at that time :

> " The major industries of the Colony at present in being are almost exclusively confined to agricultural products such as tea, rubber, coconuts, cocoa, &c., and the manufacture and preparation for export of such products. Other industries approaching the category of major industries are those which exist for the purpose of catering for the engineering and other requirements of these main agricultural industries. " (Vide Sessional Paper No. 1 of 1922).

The Commission was of opinion that the Industries dealt with in their report, being quite new to the Island and of an experimental nature, would not attract private capital. They recommended that these should be undertaken by the Government. They listed as suitable the manufacture of glass, paper, soap, cement, cyanamide, charcoal, acetic acid, alcohol and other chemical products, fish oil, fish manure and tinned fish. However, the recommendations of the Commission were not implemented.

During the twenties, industrial development made little or no headway. The world depression of 1931, however, underlined the inherent weakness of the Ceylon economy dependent as it was on the fortunes of three major export products. Politically, too, the constitutional reforms of 1931 enabled Ceylonese to play a limited, though important, role in the affairs of the country. A separate Ministry of Labour, Industry and Commerce was established. The initial task before the Ministry was to survey the existing potential with a view to laying the foundations of a future industrial policy. In the thirties the emphasis was on cottage crafts. Thus between 1933 and 1938 cottage crafts were liberally assisted by Government. However, the need for a diversified economy to withstand the possible recurrence of the experience of 1931 was realised. The Pokkanwala Commission appointed in 1931 made far-reaching recommendations including the establishment of a state aided bank and a separate Department

of Industries to undertake pioneering and administrative work, render technical advice to industries and to guide the industrial policy of Government. The Commission was also of opinion that the Government could profitably associate itself with industrial development by erecting model factories and instituting a scheme of industrial scholarships. A separate Department of Commerce and Industries was set up in 1938, for the purpose of the establishment and maintenance of factories, industrial centres, workshops, training schools and facilities for industrial research. A state aided bank, the Bank of Ceylon, came into being with state and private capital in the following year.

The new department prepared a scheme for the establishment of a Plywood Factory and private enterprise was consulted and invited to start the factory. In spite of the Government's offer to underwrite the entire share issue there was no response from the private sector and accordingly the Government established the factory as a state undertaking in 1942. The scarcity of manufactured and other consumer goods during the war served to emphasise further the need for industrial activity in Ceylon. Driven by this pressing need and, perhaps, mindful of the discouraging results of the previous attempts to interest the private sector, the Government established during the war period a number of factories, namely, Steel Rolling, Leather, Drugs, Ceramic, Glass, Acetic Acid, Paper and Cardboard, Coir Goods, and Carpentry. During the war period, apart from small losses incurred by the Steel Rolling, Acetic Acid, Ceramic and Drug Factories, the rest showed good profits. The over-all picture was one of profitability of government industrial undertakings throughout the war years. Since the end of hostilities, however, the position altered. Except the Plywood Factory and the Carpentry Workshops most of the others turned out to be unprofitable. This was but to be expected. The wartime factories were started purely to meet war-time shortages. In the context of war-time scarcities and controls the products of these factories found a ready demand at economic prices. However, with the return of peace and normal supplies of goods, such factories turned out to be uneconomic.

In fact, in 1945, the Executive Committee of Labour, Industry and Commerce anticipated such a possibility and indicated in its report on Industrial Development and Policy that "the real test would come with the return of peace-time conditions attendant with the political and economic policies of Government. The survival of some of these industries will depend on the policy Government will be willing or internationally permitted to adopt towards industrial development" (Vide Sessional Paper 15 of 1946). The report went on to discuss the future organisation of industry and outlined the framework of an industrial policy to deal

with the post-war situation. Industries were demarcated into basic and non-basic. Basic industries were to be under state ownership ; while non-basic industries were to be left to private enterprise with the state assisting them with technical information, advice and protection. They proposed that the factories already established should be formed into a Corporation with Government as well as private capital. This proposal was, however, rejected by the State Council. The constitutional and political changes in the post-war period prevented the implementation of the policy laid down by the Executive Committee. Meanwhile new projects were started and state industries continued to be a drain on public revenues.

In 1951, the Government appointed a commission to enquire into the working of Government Commercial Undertakings. The Commission went into the causes of the persistent losses incurred by the State Undertakings and recommended the closure of certain activities, namely, Rice Hulling Plants, Steel Rolling Factory, Ceramic Factory, Acetic Acid Factory, Paper Mill, Drug Factory, and Carpentry Workshops. In respect of others they recommended their transfer to corporations or co-operative societies. Since then a number of these undertakings have been closed down and only the Cement, Plywood and Leather Factories are now functioning.

The need for industrialisation

THE problem of industrialisation springs from the peculiar characteristics of the economy. The fundamental characteristics of the economy remain much the same as they were described to be, by the Industries Commission in 1922. Ceylon still has a primarily agrarian economy. Industrialisation has made very little headway. Three major agricultural products, viz., tea, rubber and coconut, constitute on the average over 90 per cent. of exports. Domestic exports less imported materials used account for over 30 per cent. of the gross national product directly, while, indirectly, they account for much more. Whatever little industrial activity there is, is centred round, for the most part, the agricultural exports. Over 30 per cent. of the gross national expenditure is on imported food and other consumption goods. Despite this large dependence on foreign markets both for income and consumption, Ceylon is in no position to influence the prices of either her exports or imports. In her exports she does not hold any monopolistic advantage in any of the foreign markets, while her consumption of the several kinds of imports forms only a very insignificant fraction of total world consumption. This over-whelming dependence on foreign markets for income as well as consumption makes the economy particularly susceptible to foreign economic influences. In the post-war period the terms of trade have been generally in Ceylon's favour due to

the buoyant economic conditions that have prevailed. This gives no room for complacency for it is known that in times of depression the prices of primary products tend to fall faster than those of manufactured goods.

For the most part, domestic non-export production is rooted in subsistence farming. Production in the Government sector is dependent on the availability of revenue, more than 50 per cent. of which is earned by way of export and import duties whose yields vary in direct proportion to prosperity in the export sector.

This precarious dependence of the economy on foreign sources is coupled with a population expanding at an annual rate of about 2.7 per cent. with a high propensity to consume and a consequent low propensity to save due to low per capita incomes and an extremely skew distribution of income. The Central Bank Survey of Consumer Finances reveals that the per capita income of resident individuals is only Rs. 35.40 per month and the distribution of income is markedly skew.

The structural peculiarities of the economy lead to the inevitable necessity to increase incomes rapidly and to diversify the economy in order to make it less susceptible to foreign economic influences. The Ceylon economy is said to be eminently suited for agricultural rather than industrial development. Be that as it may, Ceylon cannot hope to seek her salvation in agricultural development alone. Ceylon cannot hope to increase national income exclusively by increased agricultural production. The availability of land is limited and, in any case, a balanced economy should have a substantial industrial sector as well. Even though the greater emphasis may be on agriculture, Ceylon can and must undertake industrialisation on the lines best suited to her natural and human resources if she is to ensure for her rapidly increasing population a decent standard of living.

The Programme of Development

CRITERIA AND POLICY

The need for industrialisation has already been emphasised. The lines on which such industrialisation should proceed depend on a number of factors, the most important of which are the availability of both human and natural resources and the economic feasibility of particular ventures. Regarding human resources, with a population expanding at a rapid rate, there should be no scarcity of persons seeking gainful employment. However, whether such a flow of employable population can be fitted into desirable lines of industrial development depends on whether they possess the required skills. A rapidly increasing population with no facilities for

acquiring the requisite technical skills can be a hindrance rather than a fillip to the industrialisation programme. The training of skills is linked up basically with the Education Policy followed by Government. The details of such policy have been outlined elsewhere. In the capital and current expenditures of the Ministries of Education, Home Affairs and Industries considerable emphasis has been laid on the training of skills. Further, under the various technical assistance schemes Ceylonese technicians are being trained abroad. In the interim period till such time as trained Ceylonese personnel are available it is possible to obtain the assistance of foreign experts and technicians through International Agencies.

The suitability of particular industries would thus depend, primarily, on their economic feasibility and the availability of the raw materials. The raw materials may either be available within the country or from foreign sources at prices which would enable the manufactured product to be turned out at an economic cost. It is no doubt advantageous if the basic raw materials were available within the country; but, that need not be a necessary pre-condition for industrialisation. In any case, there remain considerable resources suited for industrial products both large and small which are yet to be exploited. It is best that the first phase of Ceylon's industrial development should emphasise the exploitation for industrial purposes of indigenous natural resources.

The criteria of suitability of any proposed industry have necessarily to be established by scientific research. The mere existence of natural resources is an insufficient criterion for their exploitation. The projects should be both economically and scientifically feasible. With a view to providing a practical industrial research service and technical assistance both to the public and private sectors Government has already established the Ceylon Institute of Scientific and Industrial Research. The Institute will be maintained for the first five years on an annual grant from Government of Rs. 1 million. Thereafter, it is expected that the Institute will be able to function on the fees collected for its technical advice; there is, however, provision in the Act for further financial help from Government. The nucleus of the organisation has been formed by the transfer to the Institute of some of the specialised staff and the library of the Department of Industries; the Institute functions at present under the Directorship of an expert loaned by the World Bank. The initial response from the private sector has been very encouraging.

Industrialisation in the programme is based on a new policy designed to "help the private sector to help itself". As a first step towards the implementation of this policy the Government sponsored Corporations Act, No. 19 of 1955 has been placed in the Statute Book. This Act enables

the transfer of Government enterprises to the private sector in three stages. In the first instance, the undertaking will be transferred to a corporation with capital provided by Government. The next stage will be the sale of Government shares to the public, and finally, when the Government holds less than 20 per cent. of the share capital, the corporation will be constituted as a public company under the Company Law Act. Such a procedure, while enabling public and private capital to work in collaboration, releases public funds for new ventures after the initial nursing of the public undertakings has been successfully completed. Private capital is at the moment shy of undertaking any but the known risks like those involved in buying up real estate or engaging in import-export trade. Under the new policy, Government would undertake the initial risk partly or wholly, and once the industry is firmly established private capital would be invited to participate. The policy is designed to attract the private investor into the desired lines of development in the economy.

SMALL-SCALE INDUSTRIES

The new policy also aims at producing through the agency of small-scale industries certain classes of consumer goods presently imported. From the field of imported consumer goods certain industries have been selected for development during the six-year period. The list is attached to this chapter as Appendix A. The selection is by no means exhaustive and further investigations into the possibility of manufacturing other classes of goods are being made. Detailed investigations regarding the possibilities of the local manufacture of seventeen classes of such goods are to be carried out immediately. These are listed in Appendix B.

During the six-year period a sum of Rs. 10 million has been allocated for Government participation with an encouragement of the private sector in the establishment of small scale industries. The participation by Government will take several forms and in addition to underwriting, will include the purchase of shares, the grant of loans, and the guarantee of credit. It is expected that on the average Government participation will constitute about 20 per cent. of the initial capital of these enterprises. Calculated on that basis the effect of Government's participation in the extent of Rs. 10 million would bring a total of Rs. 50 million capital into small scale industries. A further incentive towards attracting private capital, is the tax relief offered to new industrial undertakings. The profits and dividends of Government sponsored Corporations are wholly exempt from tax for five years after commencement and in the case of other new industrial undertakings the same concession applies up to 5 per cent. of capital.

LARGE-SCALE INDUSTRIES

In the sphere of large scale industries Government's participation would have less to do in the fields of design, construction, management and operation. This does not mean, however, that Government is not interested in large scale industries. On the contrary, Government's policy is to create a favourable atmosphere in which the rapid establishment of large scale industries by private enterprise becomes possible. To this end, Government proposes to spend considerable sums of money in providing cheap power, transport and the social capital installations required for industrial growth. Directly, too, it is proposed to spend Rs. 25 million by way of participation with the private sector in the establishment of large scale industries. Some of the industries contemplated are—

(*a*) A Tyre Factory to manufacture 110,000 tyres annually with a capital investment of Rs. 12 million ;

(*b*) A Textile Spinning Factory operating on 30,000 spindles at a capital cost of Rs. 6 million ;

(*c*) A Sugar Factory for the manufacture of 25,000 tons of sugar annually requiring a capital investment of Rs. 50 million ;

(*d*) A Fertiliser Factory to manufacture 125,000 tons of fertilisers annually requiring a capital investment of Rs. 100 million ;

(*e*) An Ore Dressing Plant for the refining of 100,000 tons of raw sand per year for the production of Ilmenite, Rutile and Zircon at an estimated capital cost of Rs. 7 million.

The above list is by no means comprehensive and there are many other projects which have already been investigated or merit close attention. Such projects include, steel-rolling and re-rolling, the manufacture of oil engines, pumps, engine blocks, tools, chemicals (magnesia, potash, soda, &c.), pharmaceuticals, drugs, dyes and intermediates, abrasives, &c., and the manufacture and processing of rayon, nylon and other artificial fibres and plastics. Government will probably be contributing up to a maximum of about 20 per cent. of the capital of such large scale industries. Government participation to the extent of Rs. 25 million is therefore likely to bring in a total investment of about Rs. 125 million into large scale industries during the six-year period. Government undertakings in large-scale industries, where considered essential, have not been entirely abandoned, though no specific provision has been made for any in the six-year period.

COTTAGE INDUSTRIES

Included also in the programme is a scheme to encourage Cottage Industries which should enhance substantially the incomes of agricultural labour.

The peasant farmers find employment only seasonally and are consequently under-employed during most parts of the year. A wide-spread system of Cottage Industries would be best suited to attract this under-employed population into avenues of part-time employment. Cottage Industries, however, differ in concept from the small scale industries discussed here. The programme for Cottage Industries is outlined in a separate chapter.

Existing Government Enterprises

DURING the six-year period Government also proposed to spend a sum of Rs. 40.8 millon on the consolidation of the State industrial enterprises now in operation and on the establishment and operation of those not yet complete until such time as they are taken over by the private sector. Each of these enterprises is discussed below :—

THE CEMENT FACTORY

The Cement Factory in Kankesanturai was established in 1950. The capital cost has been nearly Rs. 22 million. The annual output of cement of this factory is in the region of 75,000 tons, which is about one-third of Ceylon's requirements of cement. From its very inception, the cement factory has been operating at a profit partly due to protection by means of a high tariff on imported cement. The aim is to provide cement at the least possible cost for the essential building activities in Ceylon. Reduction in costs of production is, therefore, of paramount importance. In order to reduce costs it is proposed to spend a sum of Rs. 2,646,000 during the first two years of the six-year period on certain minor improvements as well as on a submarine pipe line which would provide direct bunker facilities for oil tankers to unload their oil direct to the factory site. Subsequent to the establishment of the factory, cement consumption in Ceylon has increased and is now estimated to be about 250,000 tons per year. The increased building activity inherent in the present programme will raise this estimate considerably. As a step towards conserving the rising expenditure of foreign exchange on the import of cement, it is proposed to spend a sum of Rs. 9 million on the installation of a second kiln with a capacity of 100,000 tons. The annual output of the factory would then be between 170,000 and 200,000 tons and is expected to meet almost 80 per cent. of Ceylon's present requirements. The cement industry is expected to expand further and although it is not specificallly provided for under the programme, the establishment of a second Cement Factory to exploit the

raw material resources in the Southern Province is being investigated. Such an expansion would not only enable the total of Ceylon's requirements to be met locally but also make the export of small quantities of Ceylon cement possible.

THE LEATHER FACTORY

The Leather Factory is one of the surviving war-time factories. More recently the Government has undertaken mechanisation and re-organisation of the factory, at an estimated cost of Rs. 835,000 of which Rs. 282,000 would be the balance falling within the plan period. The factory processess hides into leather, mainly for use in the manufacture of boots, shoes and other articles such as suitcases, volley balls and other leather goods. In the past the output has been at a level of about 20,000 pairs of shoes per year. After re-organisation and mechanisation has got under way output is expected to rise to about 45,000 pairs of shoes. The factory is expected to supply, at its peak level of production, about 25 per cent. of Ceylon's present requirements of leather footwear.

THE PLYWOOD FACTORY

The Plywood Factory at Gintota was originally installed with a designed output of 240,000 chests which is approximately 8 per cent. of present requirements. The re-organisation of the factory at a cost of Rs. 1,987,000 of which only Rs. 9,000 falls for expenditure within the six-year period is expected to increase annual output to 360,000 chests. Meanwhile the requirements of chests has increased and with further minor improvements the factory is expected to meet 14 per cent. of Ceylon's imports of plywood chests. Plywood for house-building and for furniture is being increasingly used as a result of improvements in the quality of the local product. This improvement is a direct result of the employment of modern methods such as thermo-setting resins and mechanical edge jointing. There are, in addition, many other uses of plywood which the new corporation which is being set up to run the Plywood Factory will, no doubt, carefully investigate.

THE VEGETABLE OIL FACTORY

The Vegetable Oil Factory is one of the largest industrial undertakings of the Government. The completed capital cost is expected to be Rs. 20,405,000 and of this sum Rs. 8,517,000 is to be spent in the first three years of the programme. It will come into production in 1956 and will use

its raw material poonac and other oil seeds. It is designed to produce 00 tons of deodorized oil; 45,000 tons of fatty acid, 450 tons of ycerine and 60,000 tons of compounded cattle food. The cattle food will rovide a wholesome ration for local livestock while all the other products ave good export prospects.

THE PAPER FACTORY

The Paper Factory at Valaichenai is expected to be completed in 1956. The completed capital cost is Rs. 22 million of which Rs. 5,260,000 will be spent during the first two years of the programme. The factory will use, as its raw material, straw and illuk grass, both of which are available locally. Its rated annual capacity is 3,750 tons of writing and printing paper excluding newsprint but including kraft paper bags from imported kraft pulp.

THE CERAMIC FACTORY

The Ceramic Factory is virtually a new factory which is being established in the place of the former war-time factory at Negombo. Its capital cost is Rs. 2,640,000. The factory which will go into production shortly is capable of an annual output equal to only 20 per cent. of current imports. The factory was designed with provision for the installation of a second kiln, which will be installed during the six-year period. A second factory, designed to produce almost the entire domestic requirements locally, is also to be built within this period.

THE CAUSTIC SODA-D. D. T.-CHLORINE FACTORY

The Caustic Soda-D. D. T.-Chlorine Factory at Paranthan is expected to be completed in 1956. The estimated cost of the project is Rs. 13,737,000. The primary purpose for which this factory is being built is for the production of the basic chemical caustic soda which can be manufactured from the salt available at the adjacent salterns at Elephant Pass. Chlorine, which is a by-product in the manufacture of caustic soda will be utilised for manufacturing D. D. T. The annual output of the factory is estimated to be about 1,650 tons of caustic soda, 200 tons of D. D. T., 100 tons of benzene hexachloride insecticides, 300 tons of liquid chlorine, 900 tons of fatty alcohols, and quantities of bleaching powder and chlorophynols for disinfectants. Other chemical by-products are also possible. It is proposed, therefore, to re-name this undertaking the "Paranthan Chemicals Corporation".

THE SALT INDUSTRY

The Salt Industry in Ceylon is entirely based on the solar evaporation of raw sea brine. The coast of the Island in the Dry Zones with flat open lands and low annual rainfalls provides suitable areas for the manufacture of salt. Until recently there were as many as sixteen salterns producing the annual requirements of salt for consumption in Ceylon. In 1952 a team of Salt Experts was obtained under the auspices of the United Nations Technical Assistance Administration for the purpose of improving and developing the Salt Industry in Ceylon. The team recommended that production should be established at three major centres, namely Elephant Pass in the North, Hambantota in the South, and the Puttalam group, including Palavi, in the centre. They claimed that a substantial reduction in the overhead expenditure in maintaining and running as many as sixteen different centres of production of widely varying productive capacities could be effected by this method, while at the same time salt of a better quality would be manufactured at a cheaper rate. They also recommended certain methods designed to eliminate the fluctuations in annual production as well as to increase the production of the salterns. Some of these recommendations have been accepted by Government and the development of the State-owned salterns at Elephant Pass and Hambantota was taken up in the latter part of 1952. A sum of Rs. 1,452,000 is provided in the programme for expenditure on improvements to the Salt Industry. The major items of development envisaged are additions to electrical plant at Elephant Pass and Hambantota Salterns, the provision of more stores and workshop accommodation, further extensions to the storage platforms, increase in the pumping capacities and the completion of earth works.

MARKETS AND FINANCE

In the initial stages of industrialisation it will be necessary to wean consumers away from imports to locally produced substitutes. There is bound to be considerable consumer resistance and, if foreign competition is allowed free reign, it may not be economically feasible to produce most manufactured goods in Ceylon. Government would necessarily have to afford initial protection to the local industries generally by means of tariffs but sometimes by quantitative controls. The provisions of the Industrial Products Act already confer considerable protection on local industries However, even as it is necessary to protect such industries in their initial stages, it is also necessary to protect the interests of the consumer. Quality should not be allowed to suffer as, otherwise, the Government would be protecting inefficient industry and forcing the

Ceylon consumer to buy low quality products while weakening the competitive power of such products abroad. With a view to ensuring the quality of the local products Government proposes to establish a Standards Institute on somewhat similar lines to that operating in India.

The general plan of the Government's industrial policy is a shift of emphasis from large scale to small scale industries and a shift in the role of the State to that of promoter rather than of sole entrepreneur. The success of such a policy is dependent on the co-operation extended by the private sector and the availability of private capital. With all the desire to co-operate with Government in the promotion of industrialisation in Ceylon the private sector may be baulked by a shortage of capital. In order to make good this deficiency of capital Government is actively considering the establishment of a Ceylon Development Corporation with foreign and local capital. The function of the Corporation would be to provide the finance necessary to initiate new projects in industry, agriculture, and other fields and to provide for the procurement of managerial and technical assistance for such ventures.

To sum up, the six-year industrialisation programme of the Government envisages the direct expenditure by the Government of Rs. 40.8 million for the expansion of existing industries and the completion of projects already under construction. Government intends participating in small-scale industries to the extent of Rs. 10 million and in large scale industries to the extent of Rs. 25 million. Schemes for the training of skills and a Standards Institute are also envisaged. An Institute of Scientific and Industrial Research has already been established, while the Ceylon Development Corporation will soon be set up. The policy is to emphasise small scale and cottage industries while fostering suitable large scale industries, and to transfer gradually the control and management of State Industries to private enterprise with the Government retaining where necessary a share interest.

APPENDIX A (Chapter 7)

Products listed for investigation and study as suitable for manufacture in units of a small scale

Abrasive Paper
Accumulators
Agricultural implements
Agricultural machinery (for rubber, tea and coconut industries)
Aluminium ware
Aluminium linings
Asbestos-cement

Batteries—dry cell
Bicycles—parts
Bolts and nuts, rivets and screws
Boards—pressed (from woodwaste, &c.
Boats, launches
Bon-bons
Bass nails, screws, hinges, locks, &c.
Brushes—paint
Bricks, solid and hollow
Buckets, galvanised
Buttons
Cadju nut seed oil
Cartons—paper
Caffeine
Castings—ferrous and non-ferrous
Ceramic ware
Chappals and slippers
Cigar boxes
Clips—paper
Combs
Concrete products
Containers—metal
Confectionery—biscuits, boiled sweets, chocolates
Cosmetics, toothpastes, &c.

Distemper

Electric fans
Electric Lamps
Electric Light fittings
Emery cloth
Enamel

Fertilisers
Fireworks
Fountain pens and propelling pencils
French polish

Galvanished ware
Garments (ready made)
Glassware
Glue (synthetic and organic)
Grocers' scales

Hosiery
Hurricane lanterns

Ink (writing and printing)
Insulators, porcelain

Kaolin and ball clay

Lacquer work
Leather goods
Linoleum

Margarine
Men's wear (shirts, &c.)
Metal edgings for plywood chests

Nibs

Paints and varnishes
Paper
Pencils
Penholders
Pharmaceuticals
Pins
Plastic goods
Plywood
Pumps

Radios (Cabinets and assembly only)
Razor blades
Rice hullers
Roofing materials
Rubber products
Rubber seed oil
Rubber tyres and tubes

Shoes
Slates
Solder and soldering wire
Steel furniture
Sugar
Suitcases

Tiles
Toys

APPENDIX A—*contd.*

Umbrellas

Vaseline and haircream

Wire, copper and drawn steel

Wire products—nails, hoop iron, barbed wire, wire mesh, chains, &c.

Waterproof clothing

Zip-fasteners

APPENDIX B (Chapter 7)

Products listed for immediate investigation and study as suitable for manufacture in units of a small scale

Shoes
Chappals and slippers
Ceramics
Shirts
Glassware
Umbrellas
Biscuits
Boiled Sweets
Aluminium ware (domestic and industrial)
Wire nails
Kaolin products
Bicycle tyres and tubes
Tiles
Galvanised buckets
Rice Hullers
Machinery for Tea and Rubber Industries
Bon-bons

CHAPTER 8

COTTAGE INDUSTRIES

The Revival of Cottage Industries

THE impact of modern production on the traditional Asian economies created a dualism in their structure. On the one hand there grew up a sector of modern production generally in trade, commerce and agricultural capitalism. On the other, there survived the traditional village economies dependent on the conventional styles of production. The former was linked to the world market and was supported by modern methods of organisation, mass production techniques, adequate finance and large scale marketing. The latter served small discontinuous local markets catering generally to the lower income groups. As the mass produced goods of the world markets reached the village sector, traditional skills and crafts tended to decline, throwing more and more people on the land or releasing them as a potential labour force that was either under-employed or altogether unemployed.

The advent of freedom in Asia has brought about a vigorous attempt at rehabilitating the rural masses and introducing them to modern high-yielding techniques of economic organisation and production, whilst attempting to preserve for them their social and cultural values. The integration of the Asian economies presents us with the two-fold problem of the conservation of existing skills and techniques and at the same time introducing new skills, social relationship, and attitudes so as to raise the economic standards of the masses. Handicrafts and small industries figure prominently in this arena of change. To hold what we have and thence to pursue new goals of achievement is an eminently practical task. Our problem is a human problem and our solutions have likewise to take the human element into consideration. Furthermore, being a human problem it cannot find an easy and rapid solution.

Handicrafts and cottage industries have been the subject of a number of conferences by the Economic Commission for Asia and the Far East. One of their Working Parties defined these production units as follows :—

> " A Cottage Industry is one which is carried on wholly or primarily with the help of the members of the family, either as a whole or a part-time occupation ;

"A small-scale industry is one which is operated mainly with hired labour, usually not exceeding 50 workers in any establishment or unit not using any motive power in any operation, or 20 workers in an establishment or unit using such power ;

"A handicraft industry is a cottage or small-scale industry the products of which are artistic in character and require skill and craftsmanship in their manufacture."

These definitions reveal that these production units may require somewhat different treatment from large scale enterprise. Their problems in the purchase of raw-materials, production, finance and the marketing of finished goods call for specialised assistance, at least until they have built for themselves institutions which can stand the rigours of competition and the business devices of the big producers.

Co-operative organisation, at all the stages of the purchase of materials, production, finance and the sale of goods, has proved to be particularly effective in serving these small producers. Ceylon, as in the case of other Asian countries, is pursuing a policy of promoting co-operative organisation in this field. Co-operative institutions receive guidance on matters of organisation, law, accounts and audit from the Co-operative Department. The technical departments provide the necessary technical advice. The policy of the government has been generally to provide financial assistance to these small producers by way of safe loans not directly but through the co-operatives.

The Government, however, does not ignore small producers who are not organised in co-operatives. Provision is made in the programme to treat them directly so that no competent craftsman will find himself handicapped in finding his place in the new economy.

The textile industry presents us with a special set of problems. Ceylon imports more than a hundred million yards of cloth per year. Local production of textiles by co-operatives, small producers and joint stock enterprises are still far from producing even ten per cent. of the demand. There is therefore a large scope for development in this field by all types of enterprises. Small producers should be encouraged not only to eliminate the waste of man-power through under-employment in the rural sector but also to build up an indigenous textile industry in certain lines, which can compete with the world textile industry. This certainly is a long period undertaking and a firm beginning is now to be made.

The Development Proposals

ON the basis of what has been said above the following projects have been included in the programme :—

(*a*) The establishment of a Cottage Industries Institute ;
(*b*) The establishment of Three Coir Workshops ;
(*c*) The establishment of an island-wide Handloom Industry which would give employment to about 25,000 persons ;
(*d*) The establishment of a Spinning mill ;
(*e*) The installation of six-Power Looms ;
(*f*) A Scheme for Training Industrial Apprentices ;
(*g*) A Scheme for Loans to Co-operative Industrial Societies and Unions, and
(*h*) A Scheme to aid Minor and Cottage Industries by way of loans to private industrial workshops.

THE ESTABLISHMENT OF A COTTAGE INDUSTRIES INSTITUTE

A serious drawback in the existing organisation which has charge of the development of cottage industries in the Island, is the absence of adequate facilities :—

(i) for carrying out experimental work in cottage industries, and
(ii) for providing technical training to departmental personnel and industrial workers in the more advanced aspects of cottage industries.

No programme for a large scale development of cottage industries is likely to succeed unless this essential requirement is provided, and an increasing number of men and women with fairly advanced technical knowledge is made available for work in the field of industrial development. It is, therefore, of the utmost importance to establish a Central Institute for imparting training, both theoretical and practical, up to an advanced level not only to the large number of field officers of the Department of Cottage Industries but also to those in private industrial enterprises who wish to acquire a higher technical skill and qualification in the industries in which they are engaged.

The Department of Cottage Industries has established a number of Industrial Centres for imparting elementary training in such cottage industries as afford scope for development in the country. Most of those who attend these Centres are men and women from rural areas with little or

no academic training but are capable of acquiring sufficient knowledge to work in a rural industry. Besides these Industrial Training Centres run by the Department, the Ceylon Technical College provides short training courses in cottage industries to those who primarily intend to qualify as Industrial Teachers. These facilities, however, are not sufficient comprehensive to produce men possessing an advanced knowledge of the techniques of industries and capable of undertaking industrial management and development on a large scale. It is proposed to establish an Institute which would provide for advanced courses on theoretical and practical industrial education up to Diploma standards.

The Institute will be established at Velona, Moratuwa, where the Cottage Industries Department is already in occupation of a private land on lease, with a few semi-permanent buildings. Although work was commenced at Velona in a very small way for carrying out experiments and training departmental personnel with the facilities available, it has not been possible to introduce either advanced courses of training or experiments on an adequate scale. To implement a regular programme of work in these directions, it is necessary to put up a few modern buildings and to instal certain items of machinery, equipment and apparatus essential for both experiments and training. The site now occupied on lease has to be acquired and work on the Institute commenced on a planned basis so that within the next three or four years, a first grade Cottage Industries Institute of the status of a Technological College, could be brought into existence. The buildings, consisting of an Administration Block, classrooms, three workshops with attached store rooms, two hostels, one each for men and for women, and the Superintendent's and servants' quarters, are expected to cost Rs. 1,325,000. The equipment required for hostels as well as workshops is estimated to cost a further Rs. 225,000.

The main training courses, to begin with, will cover the general and specific aspects of textile technology, lace manufacture, embroidery and tailoring. The courses of training will each be of 3 years' duration, and will be of a high standard. Details regarding the number of students to be trained each year, the general qualifications required, and the syllabi to be followed in respect of each course, have been worked out. There will be provision for special course for training of candidates in the more advanced aspects of cottage industries. These courses would be of one year's duration and would qualify successful candidates for certificates. Special short-term courses will also be conducted to train Demonstrators of the Department in the subjects in which they are required to acquire an adequate standard of technical knowledge.

STAFF

Competent persons, if necessary, from abroad, will be recruited to the staff of the Institute. For the proper management and work of the Institute, the following staff will be required :—

A Principal.
Lecturers in Spinning, Weaving, Textile Engineering, etc.
Assistant Lecturers in textile design, economics, Mathematics, Book-keeping, Coir Technology, Hosiery and Tailoring, etc.
Workshop Instructors, and Assistant Instructors,
Minor Staff, such as Clerks, Storekeepers, Watchers and Labourers.

The estimated capital cost of the whole scheme is Rs. 1,750,000 and the annual recurrent expenses will be about Rs. 250,000.

ESTABLISHMENT OF THREE COIR WORKSHOPS

One of the major industries in Ceylon is the Coir Fibre Industry. A large number of Ceylonese depend on the income from coir fibre and fibre products. According to available information only an insignificant part of the coir husks produced in this country is utilized in the manufacture of coir products. A good amount of the husks is being buried in trenches as manure or being thrown away and wasted. The industry can be made a commercial success by the co-ordination of proper organisational efficiency, improved production techniques and adequate marketing services. The middlemen, who have hitherto operated to the disadvantage of the producer, are being gradually eliminated and made to work for the benefit of the coir workers under the co-operative system introduced by the Department of Cottage Industries.

The home of the coir fibre industry is the Southern Province where three large exporting firms have set up their business in order to collect coir yarn and other coir products for export purposes. These firms employ agents for collecting and supplying their raw materials. A vigorous campaign is being pursued by the Department in order to organise the coir fibre industry in the Southern Province on co-operative lines. So far 87 Coir Co-operative Societies and one Union have been formed in Ceylon and during this year it is expected to form 3 more Unions and 20 Societies. The existing Societies and Unions serve only about 5,000 coir workers in the Island. According to a census of the industry carried out in 1951, about 4 lakhs of people are engaged in the coir fibre industry and out of this number about one lakh is engaged in the spinning of coir yarn.

In order to market the yarn produced under the direction of the Department of Cottage Industries by the Co-operative Societies in the Southern Province the three exporting firms in Galle were approached with a view to enlisting their sympathy and support to help the workers by placing with them regular and steady orders for coir yarn at agreed prices. Since October 1954, the three exporting firms are purchasing all the yarn that is produced by the Societies in the Southern Province, but the results achieved so far are not encouraging. It is, therefore, proposed to organise a Co-operative Union in order to handle all exports of coir goods from the country without going through the exporting firms. Unless such an organisation is set up, it would not be possible to develop the industry so as to benefit the actual workers and save them from exploitation by the middlemen.

In this connection, the organisation set up by the trade for marketing the produce internally has been satisfactory. The problem at the moment is with regard to organising the industry on sound lines for the export market. Since the Cottage Industries Department participated in the Washington Third International Trade Fair held in Seattle in 1954, numerous inquiries have been received for coir mats, matting, and other coir products. The supplies so far made on sample orders received amounting to about Rs. 13,000 have been appreciated by the American importers both in regard to quality as well as price. It is understood that annually the United States imports coir mats to the value of about 40 million from India. With the favourable reaction in America to the Ceylon product there is little reason to doubt that all measures to improve this industry will pay rich dividends.

It is proposed to set up a proper organisation for the manufacture of standard quality articles for export. To begin with, the scheme is to open three large workshops in the Southern Province at Ambalangoda, Galle and Matara. These workshops will be adequately equipped and staffed for producing various types of coir products for export purposes. The cost of establishing a Workshop is estimated as follows :—

	Rs.
Land	30,000
Buildings	75,000
Machinery :	
200 looms	
100 spinning sets	
10 willowing machines	
10 rope machines	
15 warping sets	
2 shearing machines—Necessary vats, &c., for dyeing, furniture and other equipment	200,000
	305,000

Each workshop is expected to employ about 600 coir workers in the workshop and a much larger number outside in the preliminary processing of yarn.

The workshops will be intergrated with the Co-operative Societies' activities in the areas and will, after establishment and operation for a period, be handed over to Co-operative Unions for future management. The experience gained and the results achieved in the management of the Katunayake Coir Workshop shows that such workshops in coir producing areas can prove successful commercial ventures. It has at the moment 14 Societies affiliated to it in the Katunayake, Negombo and Minuwangoda areas and it is providing employment to a large number of coir workers in these areas.

A SCHEME TO PLACE 25,000 PERSONS IN THE HANDLOOM INDUSTRY

Ceylon imports more than one hundred million yards of clothing annually. Local production of textiles is still far from meeting even 10 per cent. of the requirements of the country. There is, therefore, considerable scope for the development of weaving in Ceylon.

The Department of Cottage Industries has 350 textile centres where facilities are provided for training in handloom weaving. At most of these centres, there are both trainees as well as trained weavers. A majority of the centres have been organised into registered Co-operative Weaving Societies. In view of the protection afforded to the handloom industry by means of the Industrial Products Act and as a result of the preference given by Government Departments in purchasing their requirements to local textiles, the activites in the existing textile centres and societies have appreciably increased in recent times.

At each of these institutions, trained weavers are now in a position to earn anything from Rs. 2 to Rs. 5 per day according to their capacity and application to work. Both as a means of providing employment and as a means of stepping up local production of textiles, the handloom industry has considerable scope.

The Cottage Industries Department ensures to all weavers regular supplies of yarn and financial assistance in the form of loans to purchase the necessary handlooms and their accessories. The Department also operates a guaranteed price scheme under which finished textiles, woven according to prescribed specifications, are purchased from weavers at fixed prices, relieving producers from all difficulties of marketing their products.

An apprentice will require training for six months to weave simple material; he can become a competent weaver in one year's time; in 2 years he can weave on the handloom even the most complicated designs. After six months' training a weaver can easily earn Re. 1 a day on the production of simple materials. At the end of one year, he can double his earnings and progressively increase it according to his abilities.

Although the Cottage Industries Department has been trying hard to attract boys and girls to the weaving industry, a number of training centres started all over the Island have not been able to ensure regular attendance of a fair number of trainees, because weavers have hitherto received very little incentive during the training period. Trainees very often neglect and ultimately give up training because they receive no income during the training period. During the appreticeship period it is essential to give trainees some allowance to cover at least their out-of-pocket expenses. Any scheme for the future development of the handloom industry must provide such an inducement.

The proposed scheme provides for the establishment of about 1,000 more textile centres, particularly in areas where unemployment among the educated youth is acute. Each centre will have facilities to train at least 25 apprentices and will be in the charge of a qualified Textile Demonstrator. The Department of Cottage Industries will provide the necessary equipment, raw material and staff for these centres. As far as possible, the assistance of the Rural Development Societies will be enlisted to have buildings erected on a self-help basis. A daily allowance of 75 cents will be paid to all trainees during the training period of six months. They will be able to start earning by the production of saleable articles at the end of that period. It is expected that the incentive afforded by the payment of an allowance during the training period will attract a large number of village boys and girls to these training centres and that the opportunities offered for them to continue as regular weavers and earn a decent livelihood will keep them permanently in the industry.

At the end of one year the trained weavers in each of these new centres, will be organised either into Co-operative Textile Societies so that they may run a workshop of their own in the premises of the training centre, itself, or be encouraged to become home weavers receiving all necessary aid from the Societies of which they are members. The Co-operative Societies will be financed by means of loans or given other credit facilities to engage in regular production. Full employment will be guaranteed by means of regular orders placed for supply of the popular items of textiles which the Department of Cottage Industries purchases from the producers at pre-determined prices.

The large majority of the 25,000 persons whom this scheme proposes to place in employment, are expected to become skilled weavers. Amongst them they can easily operate 18,000 handlooms and produce a minimum of 20 million yards valued approximately at Rs. 40 million.

The scheme is estimated to cost Rs. 15,530,950 over a period of five years. The training centres will be established during the first two years, and the centres will be converted into Co-operative Textile Societies during the succeeding two years. In the fifth year, the 1,000 workshops established under this scheme are expected to be in full production. Of the total expenditure herein mentioned, Rs. 5 million will be in the form of loans to the Co-operative Textile Societies which would come into existence after the training period. These loans will be recovered in easy instalments. The net expenditure on the whole scheme to Government, will, therefore, be Rs. 10,530,950 or roughly Rs. 425 per weaver trained and placed in full employment.

ESTABLISHMENT OF A SPINNING MILL

The textile industry in Ceylon depends to a very large extent on imported cotton yarn. The yarn markets of the world fluctuate so violently and so rapidly that it has, in the past, proved difficult to ensure to the weavers in Ceylon regular supplies at reasonable prices, of the raw materials required by them. For the development of the weaving industry in the country, therefore, it is of very great importance that local production of cotton yarn should be well organised and established.

The industry as it stands, requires a million pounds of yarn per annum. With the development of the handloom industry and with the establishment of powerloom projects discussed later in this section, the country's requirements in the matter of cotton yarn will considerably increase in the next few years. Cotton yarn is now imported mainly from India, Egypt, Japan and the United Kingdom, after periodically calling for and considering competitive quotations. Until recently, yarn imports were almost entirely handled by the Cottage Industries Department. In an effort to ensure adequate stocks of yarn being made available regularly to weavers all over the Island, at the cheapest prices, Co-operative Textile Societies and Unions as well as private cotton yarn dealers are allowed under licence, to import yarn of various counts. There is only one private Spinning and Weaving Mill in Ceylon but it uses practically its entire output of yarn.

The Cottage Industries Department and other bodies interested in the development of the textile industry in Ceylon have been considering from

time to time, various proposals for the establishment of Spinning Mills locally. Provision is now made in the programme for the establishment of a Spinning Mill with a capacity of 5,600 spindles in the first stage, with provision to increase the number of spindles by a further 5,600 as a second stage. A Spinning Mill of 11,200 spindles capacity, working two shifts a day, will be able to produce annually about 1,500,000 pounds of yarn. As no single small mill can produce all the varieties of counts that would be required by the textile industry, the production by the proposed mill of 11,200 spindles will be confined to a range of popular counts of yarn. Counts of yarn not produced in this mill will continue to be imported until other mills come up to fill the gap. In the present situation there is ample room for other mills of the same capacity as the one proposed. Once the demand for yarn has been stimulated it is expected that additional mills will be set up on the initiative and enterprise of the private sector. Even the establishment of the proposed mill is subject to reconsideration depending on whether private capital would establish such a mill on its own initiative.

Concurrent with the establishment of Spinning Mills, it is both necessary and desirable to take steps to increase local cultivation of raw cotton. The soil and climatic conditions in various parts of the Island are considered eminently suitable for the cultivation of cotton. Although efforts had been made in the past by the Department of Agriculture to popularise cotton growing, in the absence of Spinning Mills within the country to absorb all the cotton thus produced at economic prices for the producers, cotton growing has not increased to any appreciable extent. It is estimated that about 3,000 acres are under cultivation of cotton but that this cultivation is being gradually given up because the only buyer of locally grown cotton is the one local Spinning and Weaving Mill at Wellawatte. The establishment of a few Spinning Mills in the country will automatically create an incentive to cotton cultivation. The raw cotton needed to work the proposed Spinning Mill of 11,200 spindles can be cultivated in less than 15,000 acres. The proposals for the improvement and extension of cotton growing in Ceylon are discussed elsewhere.

Until local cotton becomes available in sufficient quantities any Mill now established will have to depend mainly on imported raw cotton. It may be observed in this connection that Japan and the United Kingdom, two of the leading textile manufacturing countries, are operating numerous spinning mills with cotton imported from other countries.

The establishment of a Spinning Mill of 11,200 spindles in two stages of 5,600 spindles each is estimated to cost about Rs. 3,500,000 (including all expenditure on land, buildings, machinery and plant). The first stage costing Rs. 2 million can be completed in one year and the second stage costing

Rs. 1,500,000 can be completed in the succeeding year. Estimates have been prepared for a mill of this size. It is proposed to negotiate with a suitable Japanese firm to establish the mill in Ceylon and to run it for a period of time on terms and conditions to be negotiated. One of the conditions would be that the firm should train a sufficient number of Ceylonese to take charge of all aspects of the operation and management of the mill when the mill is eventually handed over. It is intended that the ultimate management of the mill should be vested in an All-Ceylon Co-operative Federation of Textile Unions, when such a Federation is formed as a logical sequence to the present policy of developing the Textile Industry in Ceylon on Co-operative lines.

POWERLOOM PROJECT

The policy of the Department of Cottage Industries has up to now been to foster the development of the handloom industry. As a result of this, there are available in the Island today about 5,000 handlooms with a potential output of 8 million yards of textiles. The average production, however, is about 50 per cent. of the potential output. Bearing in mind Ceylon's annual requirements of over a million yards of cotton textiles, it will be appreciated that even a wide expansion of the handloom industry will not be able to make Ceylon self-sufficient.

The main justification for the patronage given to the handloom industry today is the employment facilities it provides for a section of the under-employed and unemployed among the rural population. The handloom will have its own place in the textile industry if it is used for the production of textiles for which it is eminently suited, namely design material and luxury articles. But for the production of commercial lines it is an inefficient and uneconomical instrument. To reduce costs of production and to achieve self-sufficiency in textiles, it is essential to introduce weaving on a large scale on powerlooms.

In consultation with certain Japanese Technicians, a scheme has been drawn up for the introduction of decentralised powerloom weaving in the form of individual projects. Under this scheme, a project will consist of a minimum of 150 powerlooms installed in decentralised units each of which will have within a radius of 15 or 20 miles 16 to 20 looms in the form of small workshops. Centrally situated and designed to serve these peripheral units will be established, one bleaching and dyeing centre, a preparatory centre for carrying out centrally such operations as sizing of yarn, warping, winding, etc., and one finishing centre for calendering, finishing and such other operations as are necessary to give the woven

fabric a high standard of finish. One project of this size will cost about Rs. 1,250,000. It is estimated that the 150 powerlooms included in a project will on an average produce 1,500,000 yards per year at prices considerably less than the prices of similar textiles produced on the handlooms. One such project is already under execution in and around Kandy, at present. Although the Kandy project will, in the first instance, be executed by the Government, it will be handed over to a Co-operative organisation for future management. At the same time existing Co-operative Textile Unions will be encouraged to introduce powerloom weaving in their own Districts by the establishment of projects more or less on the same lines as the Government project.

It is proposed that the Government on its part should establish at least one project per year of the size of the Pilot Project, which is being established in the current year in the Kandy district, so that during the six year period approximately 1,000 powerlooms will come into production through the medium of these projects. The capital expenditure on six such projects is estimated at Rs. 7,500,000.

The economics of each project have been worked out and it is expected that the capital investment on each project will be repaid in 5 or 6 years.

SCHEME OF TRAINING INDUSTRIAL APPRENTICES

The present policy of Government is to undertake the training of men and women for cottage industries at Government Training Centres and Industrial Schools. Many centres and schools established throughout the country for this purpose have not succeeded to the extent expected of them on account of various factors. It is proposed to reduce the number of Government training units and to encourage the training of persons in the various cottage industries by assigning them to private industrial establishments and to existing industrial co-operatives on suitable terms.

There are today a good number of Industrial Co-operative Societies of trained workers who are managing their establishments very satisfactorily. They can take on, batch by batch, trainees, in the respective industries, provided they are compensated for the expenses and attention they will have to pay to new recruits for a minimum period during which the trainees will not be able to produce saleable articles, and will, therefore, be a burden on the training establishments. Apart from the Co-operative Industrial Societies, private trading establishments would be equally willing to take on new recruits for training if the expenses incidental to such training are made good by Government. To the extent that training

is undertaken by industrial co-operatives or private industrial establishments, Government will be relieved of the burden of expenditure on new training centres.

On a rough estimate training in Government units is now costing well over Rs. 1,500 per trainee, per year in the more important industries. This high cost is due particularly to the paucity of attendance at these units. The new procedure will be a considerable saving to Government. The proposal is to assign to appropriate Industrial Co-operative Societies or private establishments prospective recruits to any particular Cottage Industry. The Industrial Co-operative Societies or private establishments to which such assignments are made will be expected to hold a test in regard to the standard of efficiency attained by the trainees at the end of this period. The training establishments will be paid a grant ranging from Rs. 100 to Rs. 300 per annum according to the nature of the industry, in respect of each successful trainee.

This scheme also provides for the payment to the trainee of a daily allowance of 75 cents to cover out-of-pocket expenses during the training period when the trainee will not be able to earn any income. Regular training in any industry will require the attendance of the trainees at a training institution for periods ranging from 6 months to one year. Experience hitherto has been that most trainees find it difficult to attend training over such long periods without any aid to cover their actual out-of-pocket expenses. At one time, poor trainees were provided with mid-day meals but this practice has now been discontinued. Trainees have also to incur expenses in travelling to and from their establishments and most of them come from families which cannot afford to incur any such expenses. For this reason, a number of Government Training establishments find themselves in difficulties by reason of the trainees who join at the beginning falling off during the course of the training period. The only means of attracting the educated youth to industrial training is to ensure that they are at least not out-of-pocket during the training period. They will, of course, begin to earn by their own efforts once their training has reached a reasonable standard.

The cost of training of a recruit to an industry under this scheme range between Rs. 250 to Rs. 450. If the scheme is given effect to on a five-year basis it is estimated that 10,000 apprentices can be trained in the various industries through the medium of private institutions. It is proposed to start with the scheme in 1955-56 providing for the training of 1,000 apprentices in this manner and to increase the number yearly during the balance of the six-year period. The total cost of training 10,000 apprentices in this manner during the six-year period is estimated at Rs. 3,400,000.

LOANS TO CO-OPERATIVE INDUSTRIAL SOCIETIES AND UNIONS

It is the policy to promote the development of minor and cottage Industries as far as possible on Co-operative lines. In pursuance of this policy, a large number of Industrial Training Centres, established and managed by the Department of Cottage Industries, have, in recent years, been converted into Co-operative Industrial Societies. The responsibility hitherto carried by the Government for the establishment and management of training centres and small scale workshops, is being gradually transferred to Co-operative Societies. There are 365 Industrial Societies in the Island today, and this number is gradually increasing as more and more industrial workers are formed into Societies.

The Co-operative organisation is so planned that primary Industrial Societies are formed into District Co-operative Unions, the main functions of which are the supervision and guidance of their constituent societies, the purchase and distribution of raw materials required by the Societies and the purchase and marketing of industrial products. As this movement develops further, District Industrial Unions will combine and have an apex organisation in the form of an All-Ceylon Co-operative Industrial Federation. By this process more and more of the functions and duties of the Cottage Industries Department will be handed over to the Co-operative organisation, the ultimate object being that the Department should exercise only general supervision and provide technical guidance to the Co-operative Industrial Societies and Unions.

All Industrial Societies engage themselves in the production of industrial products according to specifications and standards prescribed by the Department of Cottage Industries. In the case of a number of industrial products, the Societies work on specific orders placed by the Department. Such procedure ensures continuous work and execution of planned programmes of production by all Industrial Societies. For the successful working of Co-operative Industrial Societies and Unions, Government aid in the form of credit facilities or of cash loans is absolutely essential. Provision exists for the granting of loans to Co-operative Industrial Societies at 2 per cent. interest and on easy repayment terms. These loans are granted through the Co-operative Provincial Banks.

Repayment of loans by Co-operative Industrial Societies have been fairly regular in the past because the Societies are under constant supervision, control and guidance of both the Department of Co-operative Societies and the Department of Cottage Industries.

With the stepping up of activities by the Department of Cottage Industries and the establishment of Industrial Training Centres on a larger scale, a network of Industrial Societies will cover most of the Districts in the

Island within the next few years. Financial provision has to be made on an increasing scale to aid and develop the activities of these Societies and the Unions. It is estimated that to provide assistance in this manner at least Rs. 1 million will be required during each year of the next 3 years and an increased amount in the succeeding years.

A SCHEME FOR AID TO MINOR AND COTTAGE INDUSTRIES BY WAY OF LOANS TO PRIVATE INDUSTRIAL WORKSHOPS.

The principle of granting State Aid to industries was accepted by the State Council in September, 1935. This aid was to be in the nature of loans on easy repayment terms. The purposes for which industrial loans could be granted were then laid down as follows :—

(i) for the purchase of machinery or plant or for additions and improvements to an existing factory or business ;

(ii) to provide working capital and to buy raw materials ;

(iii) to liquidate existing deeds or mortgage carrying a higher rate of interest.

The loans were granted under the following terms and conditions :—

(*a*) the amount of any particular loan was not to exceed Rs. 10,000.

(*b*) the loan was to carry 3 per cent. interest per annum ;

(*c*) the period of repayment was not to exceed 10 years ;

(*d*) the loan was to be repaid in half yearly or yearly instalments.

This loan scheme which functioned under the Department of Commerce and Industries under the then Executive Committee of Labour, Industry an Commerce, was handicapped by a cumbersome procedure and the loans were granted only on the hypothecation of immovable property. Very few took advantage of the scheme.

In consequence the provision of funds for this purpose in the annual estimates was gradually reduced and the scheme underwent radical revisions from time to time. At the present time the scheme of aid operated by the Department of Cottage Industries to private industrial enterprises, other than Co-operative Industrial Societies, consists of small loans not exceeding Rs. 500 at 4 per cent. interest to individuals who wish to set themselves up in a cottage industry. The loans are granted on personal bonds guaranteed by two sureties. Individual craftsmen who have no opportunities

of obtaining financial assistance through a Co-operative group now make use of this scheme. With the expansion of a number of cottage industries and handicrafts consequent on the activities of the Department of Cottage Industries, the impetus given to industrial workshops by the introduction of guaranteed price schemes for certain industrial products, and the protection offered by the Industrial Products Act, there are definite signs of greater activity on the part of private parties who are keen to set up small workshops of their own.

An increasing number of persons who have set up or wish to set up small workshops are approaching the Department of Cottage Industries for Government aid. A large number of small workshops established on the initiative and enterprise of private persons without any Government aid so far are doing very well and are employing several men and women either on daily wages or on piece rate basis. Such workshops can be considerably expanded and developed if owners could be offered financial aid on fairly easy terms.

The programme of development of minor and cottage industries through Government activities cannot go far enough to harness and direct to industrial processes the available labour resources in the ranks of the unemployed and underemployed in the country. Private enterprise must be fully encouraged and aided if the pace of industrial development is to be quickened.

The proposed scheme is for offering to private industrial workshops loans up to a maximum of 50 per cent. of the assessed value of the machinery plant or equipment already installed or proposed to be installed by the proprietor of the workshop, and on the security of such machinery, plant or equipment. All such loans will be repayable within a period of 10 years in half yearly or annual instalments at 4 per cent. interest. The maximum amount of any loan under this scheme will further be limited to Rs. 500 per person gainfully employed in the workshop.

A sum of Rs. 500,000 will be required for this purpose during each of the years 1955-56, 1956-57 and 1957-58 ; a sum of Rs. 750,000 will be required during the next two years 1958-59 and 1959-60 ; amounting in all to Rs. 3 million during the period covered by the Investment Programme. It is estimated that approximately half this amount would be recovered during the same period.

Before any loan is granted under this scheme, the affairs of the workshop in respect of which a loan is required, will be carefully investigated by the Department of Cottage Industries and only such workshops which constitute successful industrial venture would be aided.

CHAPTER 9

CREDIT AND DEVELOPMENT

THE need for an efficient credit system in a growing economy can hardly be over-emphasised. In the case of under-developed countries like Ceylon the need is even greater. A good credit system cannot, of course, by itself bring about economic development. But a bad credit system could constitute a serious drag on growth. A credit system has to be judged essentially by its ability to meet the demand for credit. In this chapter, therefore, the efficiency of the credit system operating in Ceylon will be examined in the light of the requirements of credit in the country.

The demand for credit in Ceylon may be broadly classified into the following classes, namely—

(*a*) Short term credit to finance the import-export and the retail trade ;

(*b*) Short term credit to meet the requirements of temporary credit by Government ;

(*c*) Long and medium term credit for developmental needs by the Government ;

(*d*) Long and medium term credit for the developmental needs of the private sector ; and

(*e*) Short term Consumer Credit including rural credit.

Each of these categories are examined briefly below although from a strict development angle only the third and fourth categories would be of relevance.

Commercial activity in Ceylon is centred for the most part, in and around the import-export trade. The availability of short term credit facilities for the interim financing of such trade is, therefore, of vital importance to the economy. In fact, the origin of commercial banking in Ceylon can be traced to the need for financing foreign trade. There is no evidence of a marked inadequacy of credit for this purpose. What was once a serious gap in the banking system, namely, the lack of sufficient credit facilities to Ceylonese traders, has since been filled, in part at least, by the establishment of the Bank of Ceylon. As far as retail trade is concerned too there does not appear to be much difficulty.

Short-term Government securities, namely, Treasury Bills, are the biggest avenue of investment for liquid funds available to the Commercial

Banks. With the high level of liquidity in the banking system the Government does not experience any difficulty in obtaining the temporary credit it requires. The position is the same with regard to medium and long-term borrowing by the Government. It has been possible, in the past, for the Government to obtain all the credit it required.

The fact that funds are readily available to the Government would normally suggest an excess supply of funds seeking investment. If this were the case there would be no problem of financing the long-term needs of the private sector. The real position, however, is that, while the money is available for borrowing by the Government, it is not so readily available for the developmental needs of the private sector. At first sight this appears to be paradoxical. However, the fact is that within the framework of sound banking policy, the security which the private sector is capable of offering is either inadequate or unsuitable. In a country like Ceylon the available stock of real assets is small and, therefore, inadequate for purposes of securing loans. At the same time, land which constitutes the most readily available form of security is the least suitable from a commercial banking point of view, since it cannot be readily realized and is liable to loss at realization. Furthermore, land is cumbersome as security because the examination of title and valuation leads to considerable loss of time. The lack of suitable assets to secure loans is therefore a serious impediment to development in the private sector. However efficient the credit system may be institutionally, it will not be able to function properly unless borrowers are credit worthy and have suitable security to offer. Consequently, the paradox, whereby Government can borrow its requirements while the private sector is starved of credit emerges in an economy like that of Ceylon. The operative conclusion which can be drawn from such a state of affairs is that the principles of normal commercial banking policy are inadequate to the pecular circumstances in Ceylon and that there should be institutions other than Commercial Banks to lend to the private sector on a long-term basis on the security which the private sector can offer. Two such institutions were set up by the Government, namely, The Agricultural and Industrial Credit Corporation and the State Mortgage Bank. How far these institutions have been successful in meeting the credit requirements of the private sector will be examined later in this chapter.

Consumer credit in the form of deferred settlement of accounts is available mostly in the urban areas. This type of credit is really a dissaving because it encourages consumption at the expense of savings. Rural Credit, on the other hand, is a more serious problem. The farmers require ready funds to maintain themselves in the interim period between the plantation of the crop and the time it yields results. They may also require funds of

a more long-term nature for affecting improvements to their property. The extent of such requirements is not known ; but, the survey of Consumer Finances conducted by the Central Bank in 1953 did reveal a considerable extent of indebtedness in the lower income classes, into which the bulk of the rural population would fall. The Co-operative Movement can help the rural population to a considerable extent, more especially in providing finances to obtain the elementary equipment required by them.

This discussion leads us to the conclusion that the main function of developmental credit in the Ceylon economy should be that of providing medium and long-term credit facilities to the private sector for its development needs on the security which it can parcticably offer. As far as rural credit is concerned the requirement is to provide the rural population through the Co-operative Movement or any other means short-term credit on crop security and relatively longer term credit for capital equipment. In the rest of this chapter the credit system of Ceylon will be assessed on the basis of the broad criteria we have so far laid down and of its ability to mobilize the supply of savings into productive use.

As far as the mobilization of savings is concerned there appears to be no dearth of savings institutions. There is a net-work of commercial banks and their branches spread throughout Ceylon providing deposit account facilities to their constituents. In all there are 14 commercial banks and 23 branches. Government itself provides saving facilities, especially to small savers, through the medium of the Post Office Savings Bank and the Ceylon Savings Bank. The Post Office Savings Bank functions through the Post Offices spread throughout Ceylon while the Ceylon Savings Bank accepts deposits at the various provincial Kachcheries. The Co-operative banking system also accepts deposits although, so far, the small saver has not been attracted very much to the Co-operative Banks. Apart from the banking system there are savings facilities provided by the Ceylon Savings Movement, Thrift Societies and Insurance Companies. The institutions for mobilizing savings are spread far and wide in the country and it appears that they are sufficiently varied to attract all types of savings. From this point of view, therefore, one of the criteria we laid down earlier would be satisfied.

It now remains to examine the adequacy of the credit system to meet the requirements discussed earlier. As already stated the credit system in Ceylon is adequate to the purposes of supplying short-term credit to the trade and both short and long-term credit to Government. The question then is whether there is a sufficiently flexible credit system in Ceylon to meet the long-term credit needs of the private sector as well as the demand for rural credit.

Commercial Banks

BANK Credit is very largely commercial credit, i.e., short-term credit for trade purposes. The loans which most commercial banks give for other purposes are only a small proportion of their total lending.

The narrowness of the lending policies of the commercial banks has been partly traditional and partly due to the lack of the type of security on which commercial banks can give loans. Commercial banking in Ceylon followed the development of the plantation industries by British capital, and hence became traditionally allied to the business of buying and selling foreign exchange and to the provision of finance for the export and import trades. This policy appears to be changing with the expansion of banking and the policies and measures taken by the Central Bank.

It is, in a sense, natural that bank lending in backward economies should be hampered by a shortage of suitable collateral for loans. Adequate marketable securities will be available only if there is a prior accumulation of wealth ; since the stock of accumulated capital is small, availablity of the type of security desired by the banks is also limited. The major asset in Ceylon is land, but commercial banks do not normally lend against real estate and would find it difficult to do so in Ceylon on account of the general uncertainty of title. A further important reason adduced by banks is the restriction on speedy realization of collateral.

Even with suitable legislative amendments and a system of registration of land title, the commercial banking system of Ceylon is unlikely to be able to satisfy adequately the medium and long-term credit needs of the country. For one thing commercial banking in Ceylon is based primarily on British banking principles, and banks inherently prefer to confine themselves to short-term lending on self-liquidating paper. Further, real investment in Ceylon is a very risky business and the commercial banks with their present organisation are not in a position to undertake long-term risk lending on any large scale. Add to this the lack of proper securities, and it can easily be seen that other measures may have to be devised if the medium and long-term credit needs of the economy are to be properly met.

It was in view of these factors that government set up the State Mortgage Bank in 1931 and the Agricultural and Industrial Credit Corporation in 1943. The Government has also given considerable assistance to the Co-operative credit movement, for the rural sector of the economy is the one which is least likely to have its financial needs met by the commercial banking system. Also, in view of the serious housing shortage which exists in Ceylon at present, the Government has set up two schemes for financing residential construction.

Government Loans for Housing

THE two institutions which the government has set up for financing house building are (*a*) the Housing Loans Board which was set up in 1949, and (*b*) the National Housing Department which was set up in August, 1954.

The Housing Loans Board grants loans only for house building as such. No loans exceeding Rs. 25,000 are granted. The rate of interest at the moment for a house costing less than Rs. 5,000 is 2 per cent. ; for houses costing between Rs. 5,000 and Rs. 25,000 the rate of interest charged is 3 per cent. Re-payments of the loan commences one year from the date fixed by the Board for the completion of the house. Up-to-date loans to the value of approximately Rs. 12 million has been granted by the Board. It is expected that the Board will shortly be amalgamated with the National Housing Department.

The National Housing Department has a fund called the National Housing Fund, out of which loans are granted for residential construction. Loans are granted not only for house building but also for connected purposes, such as purchase of land, road-building, &c. The rate of interest charged varies between 2 per cent. for amounts below Rs. 5,000 to 6 per cent. on amounts over Rs. 75,000. Loans are granted not only to individuals, but also to building societies, firms and local authorities. No loans were granted from the Fund up to February 1955, but between February and May 1955 loans to the value of Rs. 7.5 million had been approved. The repayment of loans is spread out over a long period.

The Government's schemes for financing private residental construction should go a long way towards reducing the present housing shortage.

The Co-operative Credit System

THE Co-operative Movement of Ceylon was officially inaugurated in 1911. Before the war, co-operation in Ceylon was virtually identified with credit co-operation ; since the war, however, it has spread out in various other directions. The general position of co-operative credit institution as at the end of 1953 is given below :

Co-operative Credit Institutions

Type of Society	*No.*	*No. of Members*	*Working Capital (Rs. '000)*
A. Co-operative Federal Bank	1	1,185	10,312
B. Provincial Banks	9	4,866	19,558
C. Primary Societies	—	—	—
1. Credit unlimited	2,535	85,354	7,676
2. Credit limited	136	13,092	2,654
3. Thrift Societies	333	44,935	7,556

Co-operative credit is organised in three layers. At the bottom are Primary Societies, Rural and Urban, whose members are individuals. The next layer consists of Provincial Banks whose shareholders are largely Primary Societies themselves and which also give loans to other Co-operative Societies in the area. The third and top layer is made up of the Co-operative Federal Bank whose shareholders are mainly the Provincial Banks and which also gives out loans mainly to them.

The Rural Primary Societies are organised on the Raiffeisen model with unlimited liability, selective membership, nominal share capital, honorary management and no distribution of profits. The amounts received from members as share capital and deposits are rather small. At the end of 1953, the total of such receipts for all Rural Primary Societies was slightly over Rs. 3 million working out approximately to Rs. 36 per member. The amount of loans granted to members at the same date was only Rs. 6 million. Deposits are small in spite of the fact that the societies pay 3—4 per cent. interest on deposits. The smallness of the deposits has led to the societies having to borrow very heavily from the provincial banks which charge 5—6 per cent. interest. As a result, the primary rural societies charge up to 9 per cent. interest on their short-term loans to members. This rate may be less than that usually charged by village money-lenders, but it is certainly too high. It may be pointed out that one possible reason for the low level of deposits of the societies is that depositors may not be having sufficient confidence in the societies, and that one way by which the difficulty could be overcome is by the Government guaranteeing the deposits of the societies. The Provincial Banks should also be made to cut the rate of interest charged on loans to the societies.

The volume of loans given by the societies to members is also very small. At present the average size of a loan is only Rs. 84. The societies grant loans only for short periods, not exceeding 12 to 18 months in duration. The position regarding long-term loans is not at all encouraging. All possible measures should be taken to enable the societies to extend long-term credit to peasants and small-holders for productive purposes. The main difficulty here, once again, is the uncertainty of titles to land.

The chief object of the Provincial Banks is to facilitate the operations of the primary credit societies and other co-operative societies. The "investments" of the Provincial Banks are mainly government securities. A part of these securities are lodged in a commercial bank against which an over-draft account is run ; the over-draft money is in turn lent out to co-operative societies. The advantage of this scheme to the provincial banks is that they pay interest only on the amount of the bank over-draft drawn, while they earn interest on the whole amount of their government

securities. On their commercial bank borrowings the provincial banks pay 3-3½ per cent. interest. The provincial banks pay 2 per cent. on members saving deposits and 3 per cent. on members fixed deposits. Their normal lending rate is 5 to 6 per cent.

The Co-operative Federal Bank in practice functions very much like a large provincial bank. The bank is owned by the societies and managed by a Board in which government is represented. The bank charges 4 per cent. on its short-term loans to provincial banks, 4¼ per cent. for medium term loans.

The development and growth of the Co-operative banking structure depends upon the development of the Co-operative movement as a whole. The chief drawback to co-operation in Ceylon at present is the lack of people with sufficient competence who are capable of managing co-operative societies. With the spread of education and the raising of educational standards the co-operative movement should strengthen itself.

The State Mortgage Bank and the Agricultural and Industrial Credit Corporation

THE State Mortgage Bank was originally intended to be exclusively an institution for giving long-period credit to agriculturists. But subsequently, it was also empowered to grant loans for the erection of buildings unconnected with agriculture. The bank has no power to lend for industrial purposes. It is managed by a board of directors all of whom are appointed by government. The bank raises funds by the sale of debentures to the public, the principal and interest of which are guaranteed by the Government.

The bank's powers of lending are strictly circumscribed. It can only lend on the primary mortgage of immovable property. The property must not be an undivided share. The amount lent must not exceed 50 per cent. of the value of the property mortgaged. Further, the borrowers' titles to the property must be pronounced to be valid by the bank's lawyers (who appear to apply very strict standards). These restrictions mean a high degree of security for the bank but they also limit its usefulness to the country.

No loans can be granted by the bank for less than 5 years or more than 25 years. The lending rate of the bank varies from 5½ per cent. in the case of loans below Rs. 5,000 to 4 per cent. in the case of loans over Rs. 50,000.

The total value of the loans granted by the State Mortgage Bank since its inception in 1931 amounted to Rs. 33.5 million. The total value of loans

outstanding at the end of December 1954 was Rs. 20.2 million. The State Mortgage Bank granted during 1954 loans to the value of Rs. 5.0 million.

The Agricultural and Industrial Credit Corporation can lend (*a*) for industrial as well as agricultural purposes, (*b*) on the basis of both movable and immovable property, (*c*) on second mortgage if the first mortgage is also made to it, (*d*) on securities which need not be as perfect as in the case of the State Mortgage Bank, (*e*) up to 75 per cent. of the value of the mortgaged property. The Agricultural and Industrial Credit Corporation unlike the State Mortgage Bank, cannot lend for residential construction. Although the Agricultural and Industrial Credit Corporation, was originally established to cater primarily for industrial borrowers, in practice its loans have been mainly for agricultural purposes ; in 1954, for instance, its agricultural loans amounted to Rs. 4.9 million as against Rs. 0.2 million granted for industrial purposes.

The Board of Directors of the Agricultural and Industrial Credit Corporation are all government appointed. The Agricultural and Industrial Credit Corporation obtains funds for lending from government at 3.5 per cent. interest. The lending rate of the corporation varies from 6½ per cent. in the case of loans below Rs. 5,000 to 5 per cent. in the case of loans over Rs. 50,000. The total value of the loans granted by the Agricultural and Industrial Credit Corporation since its inception in 1943 amounted to Rs. 50.0 million. The total value of the loans outstanding at the end of December, 1954, was Rs. 29.5 million. The Agricultural and Industrial Credit Corporation granted during 1954 loans to the value of Rs. 5.1 million.

Compared to the lending resources available and the needs of the economy the volume of loans of the State Mortgage Bank and the Agricultural and Industrial Credit Corporation has been extremely modest. Also, of the total volume of loans granted by these two institutions, only a small proportion has really been granted for "development" purposes ; the majority of the loans have been for "re-financing" operations, i.e., for the purchase of an existing real asset, (in recent years mainly for the purchase of European-owned estates by Ceylonese). The smallness of the development loans of the State Mortgage Bank and the Agricultural and Industrial Credit Corporation can be traced to two factors, (*a*) neither of these institutions has any technical competence to evaluate the economic soundness of any proposed industrial or even agricultural venture ; and (*b*) the granting of development loans to firms and individuals whose capacities are largely unknown is a very risky business. On account of these factors the granting of development loans on any important scale at low fixed rates of interest has not been practicable, for the earnings of the two institutions on their loans are so low that a complete loss on even

a fairly small loan may put the accounts of the relevant institution into red for a whole year. As long as this possibility remains the lending policy of any banking institution must necessarily be extremely conservative. The reserves of the Agricultural and Industrial Credit Corporation after eleven years of operation, stood at Rs. 557,400 at the end of September 30, 1953 ; the reserves of the State Mortgage Bank on the same date stood at Rs. 924,448, after twenty-three years of operation.

The supply of risk capital to new enterprises through loans at fixed rates of interest is unsatisfactory to both the borrower and the lender. Any new enterprise is likely to earn only very small (or even negative) profits during the first few years of operation ; to encumber a new enterprise at the outset with an interest charge would therefore restrict the scope of its activities in the first few years. As regards the lender it is unsatisfactory because of the riskiness of development loans, especially in primary producing export economies ; at low fixed rates of interest a banking institution giving development loans would find it extremely difficult to run at a profit. The best means by which a financing institution can supply risk capital to a new business enterprise is through the purchase of ordinary shares. On the new enterprises which come off satisfactorily the financial institution can make handsome profits both in dividends and in capital appreciation ; the profits so made can be used to cover the losses which some of the loans of the institutions will surely turn out to be.

In view of the inadequacy of the State Mortgage Bank and the Agricultural and Industrial Credit Corporation as sources of finance for the development of the private sector of the economy, the government now proposes to set up a Development Finance Corporation.

The Proposed Development Finance Corporation

THOUGH the Development Finance Corporation is being launched on the initiative of the government it will function as a private enterprise. Draft legislation for the establishment of the corporation has been prepared though not finalised. As envisaged at present the funds of the corporation will be acquired by :

(*a*) The issue of Rs. 8 million worth of shares ;
(*b*) An advance of Rs. 16 million from the Consolidated Fund. This advance will be free of interest and will be re-paid in 15 annual instalments commencing with the 16th year ;
(*c*) Provision is to be made which will enable the corporation to borrow from external institutional sources.

The corporation will provide medium and long-term financing to new enterprises in agriculture and industry. It will also aid in the expansion and modernization of existing enterprises with a view to contributing to new capital formation. The corporation will not only make loans at fixed rates of interest but will also take participations; in special instances it may even establish and operate enterprises of its own. In extending financial aid it will give preference to corporate bodies organised under the Ceylon law and to individuals resident in Ceylon. In its financing activities the corporation may, of course, obtain the technical advice and assistance of the Institute of Scientific and Industrial Research which has been set up early in 1955.

There will be a maximum limit of 12 per cent. to the dividends earned by the share capital of the Development Corporation. One justification for this limit is the fact that the government is to give an interest free loan to the Corporation. The limit also would assure that if the earnings of the Corporation are high, profits would be applied to building up reserves for the re-payment of the government loan and to increase the financial stability of the Corporation.

There are certain spheres into which even the most efficient institutional credit facilities may not penetrate. Credit facilities required by small scale industries and cottage industries are examples. In order to meet such needs the Government proposes to give direct credit to the Handloom industry, small scale industries in general and to similar small scale cottage industries. The risks involved in this type of lending would be unsuitable to even the most flexible credit institutions and hence the Government has stepped in to fill this breach.

During the last 20 years the growth of Ceylon's credit structure has been quite considerable. Earlier loanable risk capital was available mainly from local money-lenders, Afghans and chettiars, who charged very high rates of interest. With the establishment of the various lending institutions both the volume of loans of the money-lenders and the rate of interest they charge has been greatly reduced. The present system may not be ideally suited to meet the credit requirements, especially long-term, of the economy; but, nevertheless, it is a remarkable improvement on what was available twenty years ago. The establishment of the Ceylon Development Corporation will meet an essential need in the economy for an institution which can take the risks of investment in collaboration with the private investor in Ceylon.

CHAPTER 10

RURAL DEVELOPMENT

Origins

RURAL Development as a Government sponsored activity has its origins in a resolution of the former State Council urging the establishment of a scheme of rural welfare. In 1937, the Department of Commerce and Industries carried out a series of economic surveys of the rural areas. The results of these surveys underlined the need for measures of a special character. A Rural Development Branch was, therefore, created in 1940 in the Department of Commerce and Industries, and Rural Development Officers were posted to selected villages where service centres were established. By the end of 1947 there were 70 such centres in the Island.

Initial experience of this work indicated that considerable economic and social development would be possible if a specialised department was created for this purpose. Such a Department was established in 1948. Its primary purpose was to co-ordinate village development activities through an organisation of Rural Welfare Societies. Principles of self-help and mutual aid, familiar to the traditional rural life of this country, were to be utilised for the development of the economic, social and cultural aspects of the village. The first two years were spent in organising the activities of the Department but by the end of December, 1954, there were 5,812 men's societies and 1,895 women's societies of various kinds.

Objectives

THE basic objectives of the Rural Development Movement were first to co-ordinate village activities through a welfare organisation; second, to provide Government departments with an effective platform for educative and publicity purposes; and third to formulate village development schemes on a collective basis. These objectives would, if successfully attained, extend the degree of participation of the rural population over a whole range of activities sponsored by Government.

In the early years of the Rural Development Department funds for development purposes were only made available through the votes of the various departments of Government charged with specific subjects. Thus if a school was needed in a particular area the funds required for the purpose had to

be obtained through the Department of Education. This procedure, however, was not satisfactory. It did not provide the flexibility needed to translate popular enthusiasm into constructive effort without delay. A different system for the provision of funds was, therefore, needed. This was provided in 1950/51 with the creation of a separate Public Utility Vote to make monies available for the varied range of activities connected with rural development. The main function of the vote was to assist Rural Development Societies in works initiated by them on a self-help basis. Additional financial assistance was also made available for special activities of a non-recurrent nature, for welfare services to backward communities, and for Rural Development Societies functioning with the support of public officers.

The creation of the public utility vote marked the acceptance of a novel principle of village development wherein the efforts of the population to make good the deficiencies of the rural areas were officially encouraged and assisted. It marked also the recognition of the existence of a vast unutilized economic potential which could be harnessed and applied to a process of growth and expansion. The principle of self help would serve to reduce the costs of capital works over a wide sphere and to release, in this way, financial resources for additional investment.

The Method of Approach

THERE were two aspects to the general approach to Rural Development. On the one hand, Rural Development Societies were utilised as media both for disseminating the ideas of such development departments as Agriculture, Health, and Co-operation, and for effectively carrying extension work to the levels of the people. On the other hand, constructional activity in the form of roads, schools, dispensaries and minor irrigation works were now undertaken with a part contribution by the people themselves. The general principle was for the Government to provide 50 per cent. of the funds required. The residue was made up through the voluntary labour and the donations of the people themselves.

Survey of Progress

CONSTRUCTION

The money provision made by Government in the financial year 1950-51 was Rs. 500,000. Thereafter provision was made in successive years, totalling Rs. 8,500,000 by the end of 1953/54. Rs. 7,300,000 of this amount has been spent. In addition aid was granted by Canada to the extent of Rs. 3,200,000 for the construction of rural roads on a self-help basis.

The results are significant. By the end of 1953/54, 2,419 rural development halls, 1,091 schools, 828 industrial centres and 267 other buildings such as dispensaries and post offices had been constructed. The cost to Government was approximately Rs. 1,100,000, the valuation of the total cost Rs. 5,300,000, and the value of the self-help contribution Rs. 4,200,000 A large mileage of rural roads was newly cut and old roads improved. The contribution from Government and other funds was Rs. 3,500,000, the total valuation Rs. 9,500,000, and the value of self-help effort Rs. 6,000,000. About 10,000 wells and 53,000 type plan latrines were constructed. The cost to Government was Rs. 4,800,000, the total valuation Rs. 12,800,000 and the value of the self-help effort Rs. 8,000,000. These figures illustrate the contribution which the self-help principle has already made in recent years. They also indicate its immense potentialities for the future.

CONTRACTUAL WORK

A further development of the self-help principle was the acceptance by Rural Development Societies of various items of constructional work on a contractual basis. Thus during the period under review Rural Development Departments have constructed for the Land Development Department 2,349 houses, 243 wells and 74 latrines valued at Rs. 1.7 million and also 357 minor irrigation works valued at over Rs. 500,000. In addition works were undertaken on a contractual basis for village committees, for the Public Works Department, and also for the medical, fisheries, and social services departments.

Contact between the Movement and the Government

THE potential of the Rural Development Movement has been illustrated. It still remains, however, to be tapped to its fullest extent. Although about 6,000 men's societies and 2,000 women's societies now exist no real claim can as yet be made that they are all effective. The degree to which these organisations are utilised by various Government Departments depends largely on individual officers. Where societies have been properly made use of their contribution has been effective; where neglected, a sense of frustration has emerged. It is, therefore, of special importance that all field officers of Government should work in collaboration with these societies and utilise them to the maximum possible extent in their spheres of operation.

One of the needs of the administration is to link up more integrally with the rural population, to think in the terms in which they think and to transmit their thoughts and wishes to the centre. Very often contacts by Government servants in the field are largely confined to the traditional

leaders in the village. This approach does not always reflect the thoughts and wishes of the common man. The Rural Development Movement, through its village societies, provides a ready platform of organised village groups to whom the schemes and services of Government could be explained on a collective rather than on an individual basis. It provides also the means by which the general reactions of the people could be transmitted to the centre.

The platforms of the Rural Development Movement are not meant for the Rural Development Department alone. They exist for all field departments such as Agriculture, Co-operation, Industries, and Health, which are intimately connected with the rural population.

In the sphere of agriculture and food production, the Rural Development Movement could be harnessed to the needs of expanding output. Information on techniques of production, and the responsibility for carrying out these techniques, could be passed on through the Rural Development Organisations. Where the latter has been utilised in the past some measure of success has been achieved. In the sphere of health, in addition to the construction of wells and latrines, the Rural Development Movement has been of assistance. Campaigns such as T. B. inoculation, D. D. T. spraying Health Week, etc., have received a large quantity of assistance from the Rural Development organisation. It is on the platform of the latter that field health officers educate the people in the principles of sanitation in the rural areas.

In the spheres of Co-operation, and Cottage Industries, too, the Rural Development organisation has displayed its potential role. It has given support to the Co-operative Movement and to the Department of Cottage Industries. In the sphere of Police work the role of the movement has been particularly effective. It has provided a rural volunteer patrol and assisted in the settlement of law disputes and family feuds.

Instances of this nature can, of course, be multiplied. But the examples above show the manner in which the participation of the people can be made effective in the presence of an organisation at village levels. The adoption of a rule that extension work in village areas should be done through the Rural Development Organisation would serve to enhance the effectiveness of this work.

Possibilities of the Movement

UP to the inauguration of the Rural Development Movement, the organisation of Welfare activities had been attempted by individuals or directly by the State. With the introduction of the self-help principle considerable

headway was made not only in welfare work but in constructional work as well. The success achieved in this field points to an extension of activities in accordance with a number of principles. For instance:

(*a*) The self-help principle could be extended to *all* activities of a constructional nature in the village areas in which a portion of the work can be done by the villages themselves.

(*b*) Before the commencement of any project, the possibility of obtaining the people's co-operation and assistance may be investigated. Revenue officers who are the agents of the Rural Development Department may be consulted on the feasibility of such a course, before the entirety of a work is undertaken on Government responsibility.

(*c*) A certain amount of priority may be given to areas where the Rural Development organisation is prepared to assist in works of this nature. The quantum of Government assistance should be varied as circumstances demand. Some form of contribution may in this way be obtained from even the most backward areas.

(*d*) Preferential treatment may be extended to Rural Development Societies in the giving of contracts for constructional work. There is a natural incentive for such societies to provide work of a higher quality than provided by outside contractors.

(*e*) Priority in Government assistance may be afforded to people and societies in rural areas who initiate improvements and offer to make good their deficiencies on a self-help basis.

The adoption of the principles outlined above will contribute towards the strengthening of the Rural Development Movement and the harnessing of its potentialities. It will contribute towards the expansion of the Government's development programme by reducing the costs of capital works. It will also secure the participation of the people in both the development programme and the process of planning.

Women's Activities

THE Rural Development Department generally restricted itself in the initial stages to the organisation and development of men's societies. However, there was a growing demand that women's organisations should be

integrally linked up with the Governmental organisation of rural development. In the course of time, Rural Development Kantha Samitis were commenced. At the end of 1954 there were about 1,300 such samitis.

The work of men's and women's organisations in rural development is to a great extent complementary. The Kantha Samitis are generally assigned work of a specialised nature for which they are better suited than men's organisations. This work includes needlework, textile centres, kitchen gardens, house sanitation and child welfare. Women's organisations are also of potential importance in the development of the health and cultural activities of the village as well as of cottage industries.

Special Activities

THERE are other specialised activities undertaken by the Rural Development Societies on a self-help principle. Some of these are briefly outlined below :

SAVINGS

The Rural Development Movement has succeeded in increasing the tempo of the National Savings Movement. A large number of Co-operative Thrift Societies have already been sponsored by the Rural Development organisations

MILK FEEDING SCHEME

About 1,800, or half the total of Milk Feeding Centres established by Government are under the direct supervision of Rural Development Societies. Co-operative Dairies have also been established through the initiative of these societies. These activities have contributed towards both a better distribution and consumption of milk and an expanded supply.

BLOOD DONATIONS

Rural Development Societies have encouraged the donation of blood to the Blood Banks of the Health Department. From one district alone about 1,600 donors from 62 societies of men and women have donated blood at the General Hospital, Colombo.

THE WELFARE OF BACKWARD COMMUNITIES

Work connected with the welfare of backward communities, mainly Veddhas, Rodiyas, and Kinnarayas is one of the special activities of the Rural Development Department. The general approach is to organise these groups through Rural Development Societies so as to obtain assistance, and to work for themselves in converting their existence from a nomadic to a settled one.

Training

ANOTHER feature of the work of Rural Development is the training of village leaders. The need for developing leaders who are an integral part of the rural communities is vital. A scheme of Provincial Training Centres was started in 1951 under the Technical Co-operation Scheme of the Colombo Plan. A Staff Training Centre has also been established at Dalugama for the training of Rural Development and other workers. Under the former scheme a large number of village leaders have been trained in the principles of the movement and in the value of self-help. The process of training, however, needs to be sustained if a real impression is to be made in the rural areas. The Staff Training Scheme covers a comprehensive curriculum and includes practical work in selected villages. The overall planning of the programme is carried out by a specialist in training obtained from UNESCO.

Conclusion

CONSIDERABLE work has been done in the past by the Rural Development Movement but much remains to be done. There is the need to intensify the activities of the more efficient Rural Development Societies and to enliven others which are less efficient. The Rural Development Movement offers a ready means of mobilising the co-operation of the rural population. Such co-operation is vital to the implementation of a programme of economic and social development. There are a multitude of problems affecting the village economy. Their solution demands concerted action both at the centre and at the circumference. It depends also on the understanding of the problems by the rural population. The Rural Development Movement offers both a forum for the expression of rural needs and a ready means of meeting them. The Six-Year Programme has provided a sum of Rs. 16.8 million for an extension of Rural Development activities.

CHAPTER 11

TOURISM

CERTAIN prerequisites must exist for a country to become a tourist resort. The natural conditions must be favourable for such a growth and these must be exploited in an income producing fashion. Ceylon's natural attributes certainly favour its development as a tourist resort. The climate is equable and varied. The hill area with its vernal quality provides a contrast to the warmer climate in the plains. The scenery is magnificent. The archaeological remains are impressive. The internal communications are good and the distances for travel are never excessive. All this is splendid tourist capital. But, above all, her geographical position on the main trunk route between East and West gives Ceylon the advantage of enjoying a considerable tourist traffic.

Despite these advantages, Ceylon's income from tourism was only Rs. 9.9 millions in 1954. Her natural assets are not being sufficiently exploited to yield as large an income as possible. Only superficial consideration has been given to the vast potential of the industry for earnings of foreign exchange, for creating stable employment and incomes in the handicraft industries and for the expansion in other related industries catering to tourists, such as tourist transport and hotel services. The tourist industry, considering its potential earning capacity, is still relatively underdeveloped. If Ceylon therefore sets out to develop tourism skilfully and purposefully potential earnings can be considerably above the present level.

Foreign Tourist Traffic

THE tourist industry in Ceylon caters to three distinct groups. The first is the transit traffic. Being on the main travel route, a stream of people disembarks at Colombo. Colombo is to them only an intermediate stop. The average duration of stay is probably a few hours, rarely a day. During the available time, they usually tour the city and its environs, perhaps have a meal and also make some small purchases. Such tourists should be ensured as pleasant a time as possible ashore. Touting should be eradicated. Taxi fares should be controlled. If tourists are certain that they are not being mulcted they become less suspicious and generally spend more. Ceylon's total earnings from transit passengers have increased while the amount spent by each transit passenger too has risen. The figures below indicate this.

Earnings from Transit Tourist Traffic, 1949–1953

Year	*No. of transit passengers*	*Total earnings from transit passengers*	*Earnings per head of the transit passenger*
		Rs.	*Rs. c.*
1949	243,789	275,770	1 13
1950	403,359	1,751,856	4 34
1951	414,300	2,283,928	5 27
1952	416,236	2,956,137	7 10
1953	388,751	2,741,967	7 5

Source : Tourist Bureau.

The country cannot influence the total number of transit passengers. But it can influence the revenue it derives from them by the measures mentioned above.

This large number of transit passengers is a ready-made market for the handicraft industries, which are at present languishing for want of patronage. But before these articles can find acceptance, more attention must be paid to finish, design and skilful merchandising. These traditional crafts can be revitalized, if they are re-organised to suit modern requirements. Already in Japan and India, tourism has infused new life to the indigenous crafts. The same can be done in Ceylon.

The second group is the " stop-over " traffic ; that is, the foreigner who decides to spend his vacation in Ceylon. At one stage, it was thought that Ceylon's tourist traffic was inexorably of the transit type. It was argued that publicity could not attract " stop-over " traffic into this country. This does not appear to be true any longer. The figures below indicate the recent trend in the increasing proportion of " stop-over " traffic :—

Foreign Tourist Traffic, 1949–54

Year	*Transit (No.)*	*Stop-over (No.)*	*Total (No.)*	*Per cent. stop-over to total*
1949	243,789	24,865	268,654	8
1950	403,359	47,102	450,461	10
1951	414,300	64,938	479,238	13
1952	416,236	66,185	482,421	13
1953	388,751	60,114	448,865	13
1954	354,332	59,111	413,443	14

Source : Tourist Bureau.

Ceylon can directly influence the stop-over traffic by advertising and sales promotion. Although there has been a slight reduction in the total number of tourists, total earnings have increased. This is due to an increase in the average length of tourists' holidays. Previously a week was the average duration of stay ; this average has now increased considerably.

The Government, through the Tourist Bureau, proposes to spend Rs. 4.5 million over six years on tourist promotional activity, mainly publicity. The publicity must be continuous as tourism is a highly competitive business. Many countries vie with each other to attract tourists. The tourist attractions of a country must therefore be continuously publicised. When such advertising is directed to the most lucrative markets, the return per unit of expenditure on publicity is maximized. Advertising in Europe or America should yield higher returns than promotional activity in our neighbouring countries.

The benefits of this publicity will be felt directly by the private sector. It must therefore be prepared to give of its best. The tourist must enjoy the same standards of service and comfort as he is normally accustomed to. Luxury need not be the keynote. With cheaper air travel, the habit of taking vacations in more distant countries is spreading. Previously, only the very rich could afford to travel. But now a large number of people from the middle-income groups enjoy this privilege. Such groups demand good, clean, wholesome accommodation and food at moderate prices. Hotels therefore constitute a factor of the greatest importance in the development of the tourist industry. The number of rooms in both first and second class hotels (excluding rooms in resthouses) in December, 1954, was 890 containing 1,382 beds. From a hotelier's point of view, the important need is that the services and accommodation he provides must be patronised to a certain degree of capacity all the year round. He otherwise incurs a loss. A frequency of occupation of 60-70 per cent. is the minimum required for efficient operation. The Governmental publicity programme will help the hotels to obtain even patronage throughout the year. They, in turn, must co-operate by providing good clean service at a moderate price.

Local Tourist Traffic

LOCAL people who go on vacations within the country form the third category. This is to a large extent seasonal, migratory traffic. During certain seasons it is the custom of a section of the population to holiday in the hills. Holidays off the beaten track are now becoming more popular. This traffic finds accommodation either in their own houses up-country or at hotels and guesthouses established to cater to this traffic.

Governmental interest in this group is due to its ownership of resthouses. The resthouses are patronised very largely by Ceylonese who account for 90 per cent. or more of resthouse occupancy. These resthouses were originally opened by the Government along the trunk roads and at the centres of main governmental activity mainly to serve its own employees on circuit. Their clientele has now changed and accommodation and resthouse facilities are now sought more by the private individual and occasionally by the foreign tourist. Most of the resthouses, located as they are, in spots of rural charm are natural assets and should not be allowed to remain financial liabilities.

The 107 Government resthouses are managed by three different authorities—the Home Ministry, the Tourist Bureau and Local Authorities. This divided management has made for varying levels of comfort and amenities. The resthouses managed by the Tourist Bureau have shown that through imaginative investment and the provision of a modicum of amenities such as drainage, resthouses can be made to pay their way. Rs. 7,876,000 has therefore been allocated for the development and improvement of the resthouses managed by the Tourist Bureau. The management is to be completely re-organised. High standards of cleanliness, service and cooking will be insisted on. Tariffs will be kept low to increase their popularity. Once a high standard of cleanliness and comfort is achieved, the resthouses will cease to be a liability and will begin to pay their way. Provision has also been made in the Programme for improvements to resthouses managed by the Home Ministry.

Summary

THE Government development proposals for the tourist industry are confined to two projects. The first is for travel sales publicity abroad, which is to cost Rs. 4.5 million ; the other project is the development of resthouses at a cost of Rs. 7.9 million. Private enterprise has an important role to play in the development of tourism, as the responsibility for providing accommodation and other tourist services will fall on its shoulders. If it does its part well, tourist earnings should rise from the present Rs. 10 million to Rs. 50 million.

CHAPTER 12

BASIC UTILITIES—INTRODUCTION

THE transport and communications system of a country is an integral part of the economy. To the extent that it enters the intermediate processes of production and serves as a medium between producer and consumer it can be regarded, in its own right, as part of the production process itself. The system is all the more important in an economy which has a large volume of import and export trade. Inefficiency in the system increases costs both to the producer and to the consumer.

The Administrative Pattern

UNTIL October, 1947, the entire system of transport and communication in Ceylon was in charge of a single Ministry which also had under its aegis the building works of the public sector and the development of electrical power. Today the Ministry of Transport and Works is responsible for (*a*) the road system ; (*b*) the railways ; (*c*) ports and harbours ; (*d*) inland waterways ; (*e*) civil aviation ; (*f*) public works ; (*g*) the development of electrical power. The Island's system of postal and telecommunication services, and broadcasting are in charge of the Ministry of Posts and Broadcasting.

The entire investment programme of the Ministry of Transport and Works covering Railways, Posts, Public Works, Civil Aviation and Electrical Power amount to Rs. 568 million for the six-year period.

The investment programme of the Ministry of Posts and Broadcasting amounts to Rs. 73 million for the six-year period.

The Increasing Demands

THE strain of the system of transport and communications has risen because of a number of causes. The population has increased rapidly in recent years. There has been a marked urbanisation of the country both by the expansion of the existing towns and by the growth of new townships. The population of Colombo itself rose from 244,163 in 1921 to about 425,000 in 1953. The movement of commodities has increased very rapidly. The commodity traffic moving through Colombo Port (exports and imports) rose from Rs. 500 million in 1938 to Rs. 3,175 million in 1953 which is remarkable even after making an allowance for the rise in prices.

The success of the old colonisation schemes and the rise of new colonisation schemes like Gal Oya have brought about new flows of traffic. Great changes have taken place in the density of population in certain areas. For example, the population of Polonnaruwa—at present a Government Agent's area—which was only 7,901 in 1931 rose to 20,809 in 1946 and to 61,000 in 1953.

In addition to all this the travel habits of the people have changed considerably. For example, the number of passengers carried by motor buses in June, 1948, was 11.9 million. By 1953 it had risen to 23.9 million. The railway passengers carried in 1938 was 10.8 million but by 1953 it had risen to 26.0 million.

Meanwhile, the recent report of the Omnibus Commission has drawn attention to the chaotic state of public transport. Consequent on this report it is proposed to take steps to reorganise completely the transport services in the Island, and provide for a properly co-ordinated and integrated system of road and rail services. As amply demonstrated by Great Britain, an efficient system of public transport will greatly reduce the transport costs to the ordinary citizens and at the same time reduce the transport charges of individual firms. An improved system of transport would perhaps reduce the number of cars in use. This, in turn, would have some effect in reducing foreign imports.

The investments in the field of transport and communications attempt to bring up to date our facilities in this field. There are certainly more projects under consideration than those included in the draft investment programme. These items are noted to be taken up if our resources in finance and materials permit it.

CHAPTER 13

POWER

Historical Background

IN 1895 a private firm began to generate electricity on commercial lines when it opened a small power station in Colombo. This source supplied power for lighting to a few offices and some government buildings, and for street-lighting in the Fort area. The supply system was extended and the Colombo Electric Tramways system was constructed in 1899 after the business had changed hands.

A private company generated electricity for Kandy in 1905. This undertaking was purchased by the Kandy Municipality in 1925. The construction of hydro-electric scheme for Nuwara Eliya was completed in 1912. But one of the most decisive steps towards popularising electricity in the outstations was the introduction from 1922 onwards of small town lighting schemes in the Western Province. By 1950 altogether 55 towns had their independent supply systems and 5 others were having their systems installed.

In 1927 a new department of government was created to operate the supply of electricity to Colombo. This department was also entrusted with the preparation of a Hydro-Electric Scheme for Ceylon. Meanwhile thermal plants provided the power.

After considerable investigations the government decided on constructing the Aberdeen-Laksapana Hydro-Electric Scheme which involved the impounding of the waters of the Kehelgamu Oya and Maskeliya Oya. Stage I of this Hydro-Electric Scheme was completed in April, 1951. The installations included in this stage produce 25,000 K.W. of power. Other stages of installation and development are to follow so as to make the fullest use of this source of power.

The Need and Scope for Development

POWER is a vital element in the economic development of a country. Ceylon suffers in this regard in that she has no natural resources of coal or oil, and she has to rely mainly on the importation of fuel from abroad.

Ceylon, however, is fortunate in having fair resources of hydro-electric potential which have unfortunately not been tapped to the fullest extent they could have been. With the limited natural resources at our command

it is obvious that we should develop our hydro-electric potential to its maximum. It is universally accepted today that even in a country with an agricultural bias electricity is a basic requirement for any development, industrial or otherwise. Perhaps, no single activity is so fundamental to development and the raising of the standard of living as a cheap and abundant supply of power.

The development of electrical power in Ceylon is mainly carried out under the aegis of the Ministry of Transport and Works.

Electrical power began in Ceylon with the installation of thermal plants. Even today thermal plants play a useful role. But these units act as a drain on foreign exchange due to the import of fuel. The Colombo Power Stations consumed 35,255 tons of fuel in 1949-50 when the units output (nett) was 62,788,057, whilst the corresponding figures for 1951-52 after the commissioning of Stage I of the Hydro Scheme were 2,452 tons of fuel and 96,746,695 units respectively. At the present output, in the absence of hydro power, the consumption of fuel would have been 70,000 tons. This represents a saving of 7.5 million rupees approximately in foreign exchange.

The fruition of the plans for Hydro Electricity would relegate thermal plants to a minor role as stand-by units or supplementary sources of power to meet special or seasonal demands.

Details of the present power capacity and the potential capacity under the Schemes now being constructed or proposed for construction are as follows :—

Power Capacity—Existing and Proposed

Plants in Operation			*Plants Proposed*		
Description	*Capacity*		*Description*	*Capacity*	
Hydro Electric	(KW)		*Hydro Electric*	(KW)	
Laksapana ..	25,000		Laksapana Stage IIA ..	25,000	
Nuwara Eliya ..	330		Laksapana Stage IIB ..	50,000	
Gal Oya ..	5,000		Laksapana Stage III and IV	75,000	
		30,330	Walawe Ganga Scheme ..	11,000	
					161,000
Thermal			*Thermal*		
Stanley Power Station..	9,000		Additional capacity under H. E. S. Stage IIB		
Pettah Power Station ..	6,000		(i) Stanley Power Station	20,000	
		15,000	(ii) Pettah Power Station	6,000	
			(iii) Jaffna ..	4,000	
					30,000
Total ..		45,330	Total..		191,000

Potential hydro-electric capacity in the Island, as a whole, has not been investigated with accuracy. It has been reported as 1 million KW. in the reports of the U. N. Economic Commission for Asia and the Far East. While other reports have put it down at 500,000 KW.

In 1949 the potential water power sources for electrical development were reported to be as follows :—

Potential Hydro-electric Power

Source	*Power in 1,000 HP*
Aberdeen-Laksapana	200
Teldeniya	160
Kitulgala	50
Ulapane	40
Haragama	36
St. Clair Falls	10
Gal Oya	9
Elgin Falls	8
Belihul Oya	6
Walawe Ganga	7
Heda Oya	5
Perawella	4
Unichchai	3
Dunhinda Falls	2
Total ..	541
	(say 400,000 KW.)

No country can rely entirely on hydro-electric power unless it has potential water power far in excess of its needs, or possesses rivers of extraordinary steady flow. This is not so in Ceylon. It is necessary therefore to include in the development plans provision for a certain thermal capacity as well.

The uses of Electrical Power

(a) POWER FOR PLANTATIONS AND INDUSTRIES

In Ceylon, as elsewhere, there are three general classes of service, and also three general classes of loads. The general classes of service are residential, industrial, and commercial. For a large metropolitan system, a typical division of customers is 85 per cent. residential, 12 per cent. commercial, and 3 per cent. industrial, but the Colombo division of customers is 64 per cent. residential, 33 per cent. commercial and 3 per cent. industrial.

In other countries, more of the residential load is used for appliances than for lighting. The average condition abroad is that by far the larger proportion of the residential consumption is for cooking, heating, and other domestic appliances, and a much smaller proportion for lighting purposes. In Ceylon, however, lighting still forms the largest part of the residential load.

Apart from purely industrial activities (i.e., workshops) and the development of the present domestic load of about 50,000 consumers, there are the factory loads required by the three major agricultural products. It is estimated that tea will require 40,000 h.p. for motive power and 75,000 h.p. for drying ; rubber 37,000 h.p. and coconut another 37,000 h.p. There are also about 60 small town Electricity Schemes with diesel plant, serving about 25,000 consumers. Extensions of bulk supply lines to these centres will produce a considerable increase in electricity consumption.

Electricity service and its general distribution have played a large part in industrial development everywhere else in the world. By making power available at any location in a city or its outlying areas, the distribution lines have helped in decentralising industrial plants, thus, permitting them to be located over wider areas and in locations more suitable for improved working conditions. Smoke elimination, plant cleanliness, neater appearance and surroundings are the natural concomitants of the use of electricity as motive power.

The distribution system is planned to cover as large a portion of the Island as is economically feasible. The Western, Central, and South-West portions of the Island qualify for priority of development. The intention is to run the main High Tension lines from the power stations in the central hill area along the Western and South-West seaboards, in a southerly direction to cover the important South-West sections of the Island, in an easterly direction eventually to tie up with the Gal Oya Multi-purpose Scheme in the East, and in a northerly and north-westerly direction to link up with the important town of Jaffna and the important coconut-growing area in the Chilaw-Negombo-Kurunegala District. Colombo town and contiguous areas reaching to the north as far as Negombo, to the south as far as Kalutara, and in an easterly direction up to Avissawella and Gampaha, will remain an important load centre and will increase in importance as time goes on. The transmission lines from the power stations to this area will therefore always be important links.

On the other hand, electrical distribution lines are expensive. One mile of 33,000 volt line costs about Rs. 35,000. Low Tension lines cost somewhat less. It will therefore not be an economical task for the department to erect long lines to supply isolated consumers. A 33,000 volt line is, however,

capable of supplying 50 to 60 mills or factories over a fair distance and it is only by arranging to supply several such consumers through a single 33,000 or 11,000 volt line that the matter can be made an economic proposition.

The intention therefore is to make available to the prospective residential, commercial, and industrial users in the area mentioned above a plentiful supply of electricity at as low a rate as possible. Whilst the average urban dweller thinks in terms of electricity for the innumerable comforts that electricity in the home can give, and whilst it is also correct that Ceylon is far behind comparable countries in the development of domestic electricity, it is to the industrial user, the factory owner, and the mill owner, that the Government must look for immediate returns from the power released from the Aberdeen-Laksapana Hydro Electric Scheme.

Furthermore, the increased use of electricity on plantations will accelerate its extension to rural areas. This factor is reported to have given a fillip to rural industry in Japan. There is no reason to doubt that the same can happen in Ceylon.

In the year 1953 fifteen tea factories and four coconut oil mills were connected with power representing an increase of 1883 KVA. Additional connections to 1852 domestic consumers have also been given. This indication of consumption growth coupled with the prospective mechanization of the Brick and Tile, the Coir, and the Weaving industries, presages a bright outlook for power development in Ceylon.

(*b*) RURAL AND DOMESTIC CONSUMPTION OF POWER

In an agricultural economy without coal, petroleum or an infinite supply of firewood, the development of the domestic load is as equally important as the development of the industrial load. Relatively rapid expansion in industrial load during the last two years consequent on the utilization of power for industrial purposes has resulted in domestic electrification being left far behind. It is the intention, therefore, to take steps to promote this aspect of electricity supply.

The power development in Ceylon today is concentrated mainly in the Municipal, Urban and Town Councils areas. This trend has persisted for the reason that the revenue factor has been the main consideration directing this policy, with the result that the rural populations have been denied the benefits of electricity.

The case for rural electrification will, however, be strengthened with the development of small scale and cottage industries such as pottery, carpentry, smithys, and the like. A large portion of the Island's population lives

in rural areas and it is imperative that rural electrification should ultimately form an integral part of the development of electric supply. In this connection the following extract from a recent U. N. report on Rural Electrification in Asia is of interest :

> "More than 80 per cent. of the population of the region lives in rural areas. If the objective of raising the standard of living of the common man is to be achieved, the problem to be solved is how to produce more wealth in agriculture and industry and to provide greater opportunities for gainful employment. It is necessary to provide mechanical aid for intensive cultivation, and increase industrial production. The need for resuscitating the cottage industries to provide remunerative employment for the agriculturist during the off-season is stressed. The desirability of dispersing industries for security reasons and of providing employment for unemployed is pointed out. Further, the benefits to be derived from the prevention of the population's exodus from the villages to urban areas are stressed.
>
> Electricity can provide one of the most effective means of solving this problem. The realization of industrial potentialities and agricultural development are closely related to the success of rural electrification programmes in the region. The rural loads are scattered. The demand per consumer is small, owing to the low standard of living, and it is difficult to supply power at economic rates for such small scattered loads. The problem, in fact, offers a challenge and an opportunity to the engineers and administrators of the power-supply industry ; a satisfactory solution will depend upon the ingenuity and professional skill they will bring to bear upon it, and also on the co-operation they secure from research institutions, manufacturers and distributors of agricultural equiment and domestic appliances and from the consumers."

With these objectives and problems in view it is proposed in the first instance to give electricity supplies to those villages within close proximity to the Transmission Lines, eventually going further afield until every village in Ceylon is supplied with electricity.

The Recent Expansion in Output and the Present Situation

IN October, 1950, the maximum demand on the Departmental Electrical System was 15,000 KW, limited to that figure by the compelling factor of the inability to produce more. In March, 1953, the consumption was 25,600 KW—an increase of 66 per cent. over the period. The very low level of electricity consumption makes such abnormal increases possible. We are

a long way from the point of saturation in consumption. With an expanding economy the horizon will recede much further.

The following figures show the comparative increases during recent years in total output and peak loads :—

Electrical Power Generation by Department of Electrical Undertakings, 1948–1954

Year	*Power Generated in Electrical Department Plants (KWH)*	*Peak Loads (KW)*
1948–49	57,075,779	13,400
1949–50	65,748,000	14,000
1950–51	82,301,273	19,000
1951–52	98,012,238	25,000
1952–53	115,277,470	27,400
1953–54	130,222,440	29,800

Data relating to generation, supply, and transmission in respect of the years 1952-53 and 1953-54 are published below for comparison.

Statistical Data—Power Generation, Supply and Transmission, 1952–53 and 1953–54

	1952–53	1953–54	*Percentage Increase (+) or Decrease (—) of 1953–54 Figure over 1952–53 Figure*
Units Generated from :			
(*a*) Laksapana Hydro Stations (KWH)	108,710,000	124,106,000	+ 14.16
(*b*) Thermal Stations (Colombo only) (KWH)	6,567,470	6,116,440	— 6.86
Total Units generated (KWH)	115,277,470	130,222,440	+ 12.96
Total Units sold (KWH)	96,324,041	107,134,807	+ 11.20
Total number of consumers	20,787	22,072	+ 6.18
Miles of transmission and distribution lines (No.)	843	903	+ 7.12
Laksapana Station Load Factor	45.25%	47.35%	—
Installed plant capacity (Kilowatts)	43,890	43,890	—
Peak Load (Kilowatts)	27,400	29,800	+ 8.76

The Aberdeen-Laksapana Hydro-Electric Scheme

(a) GENERAL OBJECTIVES

All development projects are motivated by certain objectives. In the case of the Aberdeen-Laksapana Hydro-Electric Scheme these are three-fold in character, viz :—

1. The development of the potential hydro-electric power resources of the country in keeping with—

(a) the conversion of all existing thermal power units in the tea, rubber and coconut industries, mills, workshops, Local Authorities' Power Stations and other miscellaneous generating agencies in the country to hydro electricity ; and as far as possible the conversion of all heaters and driers from liquid fuel, &c., to electrical drying.

(b) the utilization of hydro electric power for nascent industries and the promotion of new uses ; and

(c) the electrification of areas still unprovided with electricity.

2. The erection of an adequate Extra High Tension Grid to distribute the power required to load consuming areas, and ;

3. The erection of subsidiary voltage distribution systems to convey the power to consumers' terminals.

Associated with these three objectives are—

(a) Expansion of the present Operation and Maintenance Organisation to deal with a wider Distribution System ;

(b) Quarters and Offices at strategic points for Operation and Maintenance supported by a suitable communication system and adequate transport ;

(c) Promotion of Domestic Electrification which in an economy such as ours should not be secondary to Industrial Electrification, and

(d) re-organisation of the Department on a more flexible basis better calculated to secure the objectives outlined above.

(b) BRIEF DESCRIPTION OF OVER-ALL SCHEME

The Aberdeen-Laksapana Hydro-Electric Scheme seeks to harness the potential in the valleys of two rivers in the central hill country, the Kehelgamu Oya and the Maskeliya Oya separated by the Bulathwalakande Ridge.

Stage I released the power derived from the waters of the Kehelgamu Oya stored by the Dam constructed by Kotelawala Bridge. The waters so impounded are directed through a tunnel and carried by pipelines to a power house located in the Maskeliya Valley. A head of 1,500 feet is obtained in this manner and develops 25,000 KW. The impounded area under Stage I is relatively small and is therefore essentially dependent on the day to day run of the river.

In order to overcome this drawback, Stage IIA provides for a dam near the existing Castlereagh Bridge 4½ miles upstream from Kotelawala Bridge. In effect, therefore, Stage IIA adds to storage facilities by the provision of a much larger impounded area so that with the waters so conserved the present capacity of the Laksapana Power Station, viz., 25,000 KW can be doubled to 50,000 KW, and current difficulties due to lack of water during the dry season can be overcome. The existing tunnel is capable of carrying the increased discharge. New pipelines will be installed and the present power house building extended to accommodate the extra machines installed for generating the additional 25,000 KW.

Stage IIB is in essence the utilization of the head drop between Castlereagh Dam and Norton Dam. The drop is 750 feet, and this will be utilised by a tunnel in the right bank of the Kehelgamu Oya, starting from Castlereagh Dam, the waters so led being emptied through the turbines in a new power station to be built on the right bank, the tail race waters emptying into the Norton Reservoir. A further 25,000 KW will be obtained in this manner.

Stages III and IV seek to develop the potential in the parallel stream of the Maskeliya Oya. Stage III in fact corresponds to Stage I in the Kehelgamu Oya and Stage IV to Stage II of the Kehelgamu Oya. Stage III will require the building of a dam near the Laksapana Falls whilst Stage IV will similarly require a Dam near Kintyre. One or two new power stations will have to be built on the Maskeliya Oya to generate the power. It is estimated that Stages III and IV will produce approximately 75,000 KW so that the whole Aberdeen-Laksapana Scheme will yield 150,000 KW.

An essential accompaniment to Stages IIB, III and IV are the erection of an adequate E. H. T. Grid to distribute the power required to load consuming areas, and the erection of the necessary subsidiary voltage distribution systems to convey the power to consumers' terminals.

The main E. H. T. Grid is to be operated at 132,000 volts. As so far planned this would involve two main ring mains, one to the North of Laksapana

and Colombo linking up these two points with Peradeniya, Kurunegala and Ja-ela and the other to the South of the same two main points linking up Opanaike, Deniyaya, Galle and back to Colombo along the West Coast. A further ring main will link Laksapana, Peradeniya, Minipe, Badulla, Nuwara Eliya and back to Laksapana. A tee off from Ja-ela in the North Ring along the coast in a notherly direction will join up with Chilaw and Puttalam when required. Should it be decided to link up this system with the Gal Oya Development Area, a second tee off from Badulla to Inginiyagala will be necessary.

For the purpose of further development, however, bearing in mind that lines linking Laksapana with Colombo and Laksapana with Peradeniya are already in existence, what is required is to erect the Peradeniya-Kurunegala line, the line along the coast from Colombo in the direction of Chilaw, the Laksapana-Nuwara Eliya and the Nuwara Eliya-Badulla lines.

When the Walawe Ganga Irrigation Scheme is completed the link from Laksapana to Walawe through Opanaike and the completion of the further Northern Ring already referred to, i.e., from Kurunegala back to Colombo and from Kandy through Minipe and back to Badulla will also have to be considered.

The subsidiary distribution system will be operated on 33 KV, 11 KV and 400 volts. A programme of the 33 KV and 11 KV lines together with their associated primary and secondary sub-stations has been prepared covering development from the following main sub-stations :—

(*a*) 33 KV substation at Colombo
(*b*) Peradeniya
(*c*) Avissawella
(*d*) Padukka
(*e*) Kurunegala
(*f*) Norton
(*g*) Nuwara Eliya
(*h*) Passara, and also the development along—
(*i*) Avissawella Low-Level Road and
(*j*) Kandy Road.

In effect, it amounts to the construction of approximately 100 miles of line and about 40 substations per year during the period under review.

Associated with the main objectives are the ancilliary items of an adequate operation and maintenance organisation. They are no less important than the Hydro installations. The electricity services have to be maintained day and night and under all conditions of weather. Personnel have to be stationed at all key points and switching points in the Distribution system. Buildings have to be provided for them especially in the remote areas. Transport facilities have to be arranged. Communications have to be maintained. In concurrence with the Telecommunications Department a system of communications is already being built up by stages.

Development under the Programme

ESTIMATED investment in the six years 1954-55 to 1959-60 is as follows :—

(i) BALANCE WORKS AND OUTSTANDING COMMITMENTS CONNECTED WITH STAGE I.

In the first three years of the Plan a sum of Rs. 2.4 million will be spent on this investment item.

(ii) HYDRO-ELECTRIC SCHEME STAGE IIA.

This is the major undertaking during the period. The total estimated cost of this is Rs. 151 million of which Rs. 2,991,268 has been spent up to the end of September, 1954. The rest of the expenditure will be in the subsequent four years. The Loan from the International Bank will finance the foreign costs of this undertaking to the value of $ 19.1 million.

(iii) HYDRO-ELECTRIC SCHEME STAGE IIB.

This is an undertaking costing Rs. 94.8 million. Work on this will commence in 1956-57. It is anticipated that about Rs. 75 million worth of work will be carried out—the rest running into the years that follow. Work will also commence on Transmission Lines under this stage of the scheme.

(iv) CENTRAL POWER STATION—JAFFNA

As early as 1947, an understanding was arrived at with the Industries Department in regard to Electricity Supply to the Jaffna Peninsula, the maximum demand of which at that time was only about 370

kilowatts. In terms of that understanding the Industries Department was to give power to the Peninsula to meet its requirements. At that time the only town that had taken electricity supply was Jaffna. Subsequently a few other towns in the Peninsula were connected to the system, and the present load of the Jaffna Peninsula has reached the figure of 1,500 kilowatts, purely on town supply, excluding demands for industrial and agricultural purposes. It is, therefore, proposed to put up one Central Power Station in Jaffna to serve the immediate needs of the Peninsula. This Station will be linked up with the existing Kankesan Cement Factory Power Station enabling both power stations to interchange power when required.

(v) EXTENSIONS TO SUPPLY AREAS

Extensions within and outside Colombo, including provision for the augmentation of existing supplies, will be carried out.

(vi) OTHER ITEMS

Investment is likely on the erection of quarters, offices, stores, &c., the purchase of lorries, vans and haulage tractors, workshops for Kolonnawa and Laksapana, the purchase of relay equipment, the dredging of Norton Reservoir and de-silting of the Surge Chamber, the extension of lines for Rural Electrification and the purchase of Thermal Plant and spares.

CHAPTER 14

ROADS

The Growth of Road Transport

SOMETHING of the magnitude of the problems which exist in the field of road transport can be gauged from the following statistics which illustrate the unprecedented increase of road transport, especially during the post-war period, due to the increase in population and the economic development of the country. The number of motor vehicles in practically every category has been doubled within the last six years. In 1947, the total number of motor vehicles of all categories was 39,783 ; in 1955, the number had risen to 80,201. The number of new registrations which have taken place annually since 1947 are given below :

Registrations of Motor Vehicles, 1947–1953

Year	*Vehicles Registered No.*
1947	6,893
1948	8,008
1949	5,627
1950	5,147
1951	8,715
1952	8,515
1953	8,530

Today there are 13,249 lorries being employed by 1,444 public carriers and 5,291 others who use their vehicles solely for their own haulage purposes. The former category employs 2,881 vehicles and the latter 10,368.

The table below indicates the phenomenal increase recorded in the use of public transport over the last few years.

Public Transport Statistics, 1948–1953

Year	*Buses Licensed*		*Miles Run*		*Passengers Carried*	
	No.	*Expressed as a Percentage of 1948 Figure*	*No.*	*Expressed as a Percentage of 1948 Figure*	*No.*	*Expressed as a Percentage of 1948 Figure*
1948	1,502	100	3,912,017	100	11,891,586	100
1949	1,631	109	4,259,746	111	14,333,708	121
1950	1,849	123	5,089,612	130	15,946,096	134
1951	2,007	133	5,718,308	146	19,175,152	161
1952	2,329	155	5,976,337	153	22,915,685	193
1953	2,560	170	6,679,322	171	23,906,751	201

Road Policy

CEYLON today possesses a good net-work of roads. A sum of nearly Rs. 102,000,000 has been allocated under the Six-Year Programme for investment in roads. Road development in this country must be viewed in its historical perspective. The two main factors which conditioned the building of major trunk roads during the colonial era had been on the one hand strategic and on the other the development of the plantations. Today the plantation areas are fully developed, and it is now only a question of improvement of the existing roads serving these areas.

The main objective of road policy in the six year period will be to construct roads in other areas to facilitate their speedy economic development. In the Kandyan areas, which are now crying out for development, even a cursory glance will domonstrate the fact that the major roads serve tea estates while the villages in the valleys below are unserved by any roads of any importance. Road development is vital to the economic life of the country as the benefits of education, health services, industry, trade and commerce can only come to undeveloped areas through the medium of roads. The importance of roads as a national investment is perhaps not fully realized today. They help us to reach out to new development areas and new locations of natural resources. They also provide an economic return measured in the terms of the saving on vehicle maintenance, petrol and tyres. Future policy must be directed both towards the extension of the network of roads and the improvement of existing roads.

Present Position and Problems

THE estimated total mileage of roads of all categories in Ceylon is over 30,000 miles. However, out of this 30,000 miles about 40 per cent. are merely natural track and bridle paths traversing the forests, hills and jungles. There are four main authorities in charge of the entire road system of this country. The Public Works Department has under its control all the trunk and main roads and a large net-work of minor roads. The total mileage of this net-work is approximately 11,170 of which 9,630 are motorable. Of the motorable roads, 6,542 miles are bitumen surfaced and a further 528 miles are metalled, but not bitumen surfaced. The Village Committees control about 8,000 miles of village paths and cart tracks ; Municipalities, Urban Councils and Town Councils control about 800 miles of streets and roads within their respective administrative limits ; and the Department of Irrigation controls those roads constructed by the department in connection with the various irrigation projects in areas not served by other roads.

A considerable portion of roads not included in any of the categories referred to above consists of estate roads maintained by Estate authorities. Some of the estates concerned have made their roads available for public use either free or on payment of a grant. Grants are now being paid by Government in respect of about 346 miles of such estate roads. Action is being taken to open for public use as many of these roads as possible.

The relatively high proportion of non-bitumen surfaced roads in charge of the Public Works Department is the direct outcome of the adoption of two major road policies, one adopted by the State Council in 1937 and the other by Parliament in 1951. Prior to 1937, the total mileage of roads in the charge of the Public Works Department was approximately 4,806 of which 4,537 were motorable. 3,969 miles of these motorable roads were bitumen surfaced. As a result of the policy adopted by the State Council in 1937 the Public Works Department took over about 522 miles of roads hitherto maintained by the District Road Committees ; 90 miles of roads maintained under the Branch Road Ordinance, No. 14 of 1896 ; and 88 miles of roads under the Estate Road Ordinance, No. 12 of 1902. The total mileage of roads under the control of the Public Works Department was thus increased by 700 miles. Thereafter, the Public Works Department took over annually a number of miles of roads from the District Road Committees. In 1951, however, when the Provincial Road Committees and District Road Committees were abolished by the Roads (Transfer of Control) Act, 1951, about 4,400 miles of roads then under control of these authorities were transferred to the Public Works Department.

Of these 4,400 miles about 55 per cent. were bridle paths or natural cart tracks. The remainder consisted of roads lightly surfaced with gravel and in some cases with metal. The standards of construction and maintenance of these roads, however, were generally much below the standards adopted by the Public Works Department.

With this sudden increase in the mileage of roads maintained by the Central Government the programme of road construction, improvements, &c., had to be changed to meet the additional responsibilities. A programme of work costing Rs. 80 million for bringing all Provincial Road Committee and District Road Committee roads taken over up to 'C' Class standard in about ten years' time was prepared.

The improvement and construction of the minor roads by the Public Works Department has brought in its wake the awareness of the necessity to mechanize in a larger measure the work of road construction. The supply of metal and the absence of experienced firms of contractors capable of undertaking road construction works, were problems that confronted the Department. Prior to the transfer of these roads the Public

Works Department relied on the output of the labour force employed by the Departmental Overseers in the matter of metal supply, construction work, &c. This system was able to satisfy the demands at that time. But it had to be adapted to satisfy the new requirements. To meet the heavy demand for metal consequent on the transfer, the Public Works Department has installed crushing plants at central spots like Mankulam, Gonapola, &c., and has obtained a number of portable crushers. Further, mechanical plant such as earth moving equipment, graders, pile drivers, cranes, &c., have been obtained or are on indent. With these aids the department has already improved about 850 miles of the minor roads taken over. More than half of this extent has been metalled and bitumen surfaced.

The department has also purchased the most up-to-date machine in road surfacing—the Barber-Greene Finisher—and this has been used with excellent results on the Colombo-Galle Road, just outside the Municipal area. It is hoped to continue similar work on heavily used roads in other parts of the Island too. Such work will result in the reduction of maintenance costs in the future. The department has ear marked a sum of roughly Rs. 7,000,000 for the purchase of new plant and transport vehicles during the next six years.

Prior to 1951 the policy was to gradually improve the minor roads taken over, construct new roads to serve as link roads, &c., and widen and improve trunk and main roads. Even after the taking over of the District Road Committee roads, the road policy continued to be the same, but the undertakings had to be on a more extensive scale, especially in regard to the improvement of minor roads. The problem of widening and improving trunk and main roads, to cope with the increase in vehicular traffic as well as the increased use of the roads by the heavy plant and machinery imported by the Irrigation and Food Production Departments in connection with the agricultural development of the country, has assumed large proportions.

Future Development

IN the matter of new construction, the objectives and aims are (1) the construction of new roads to open large tracts of undeveloped land for agricultural pursuits, and (2) the construction of roads to serve as link roads to minimise existing travelling distances and to fill gaps in the existing network of roads.

The phenomenal increase in vehicular traffic along with the expansion of trade, commerce and agricultural development and the provision of medical and educational facilities in the remote areas of the Island, necessitates the improvement of several miles of minor roads and the widening and the

improving of the existing trunk and main roads. Bridges and culverts will also have to be strengthened to take the heavier and larger volume of traffic.

Widening of the roads through towns and built up areas requiring extensive acquisition has become financially prohibitive. The solution to this problem lies in the construction of by-pass roads through less densely populated areas. A sum of Rs. 1 million is estimated to be spent during the six-year period for construction of small by-passes not specifically provided for elsewhere.

Special mention must, however, be made of the Colombo South by-pass which is being included as a special item under the programme. The proposal is to construct a new road with overhead bridges where necessary, from the New Kelani Bridge to Ratmalana via Narahenpitiya and Kirillapone, with a view to diverting traffic from the South towards Kandy or Negombo and *vice versa* without passing through the City. This road will ease the traffic congestion of the City and cut down the travelling time of through traffic. It will also serve to develop the new areas through which it runs.

ROAD CLASSIFICATION

The roads under the control of the Public Works Department are now classified on a functional basis as follows :—

A. TRUNK ROADS—Those connecting Provincial Centres, major ports and airports ;

B. MAIN ROADS—Those connecting centres of District Administration (towns with Kachcheries or Courts), or forming important links with a Trunk Road.

C. MINOR ROADS—All Public Works Department roads excluding trunk and main roads.

The above main classes are sub-divided further according to volume of traffic as follows :—

A. TRUNK ROADS

(i) Dual carriageways 24-30 feet with 4 feet central strip and two 4 feet footways. Bridges to have 60 feet carriageways with 5 feet pavements.

(ii) Two lane carriageways (20 feet and two 6 feet verges) with 32 feet platform width (30 feet in hilly country). Bridges to have 22 feet carriageway with two 4 feet pavement.

(iii) Single lane carriageway (12 feet and two 10 feet verges) with 32 feet platform width (30 feet in hilly country). Bridges to have 22 feet carriageway.

B. MAIN ROADS

(i) Two lane carriageways (20 feet and two 6 feet verges) with 32 feet platform width (30 feet in hilly country). Bridges to have 22 feet carriageway with two 4 feet pavements.

(ii) Single lane carriageway (12 feet and two 10 feet verges) with 32 feet platform width (30 feet in hilly country).

C. MINOR ROADS

(i) 10 feet metalled carriageway with 22 feet wide platform.
(ii) 10 feet gravelled carriageway with 22 feet wide platform.
(iii) 10 feet natural track with 22 feet wide platform.
(iv) 5 feet bridle paths. Bridges to have 12 feet carriageway for spans below 50 feet and 18 feet for spans of 50 feet and over.

Bridge Loading—U K. Ministry of Transport Standard (15 BSS Units) for all classes.

Culverts—28 feet clear width between head walls, for classes A and B; 20 feet between head walls for Class C roads.

ROAD IMPROVEMENT AND NEW ROADS

All new road work and all road improvement work is now being carried out to the specifications laid down in the functional classification given above.

ROAD IMPROVEMENT

Of the major trunk road widening schemes undertaken, mention may be made of the Colombo-Galle Road widening. The first stage consisted of widening the road up to Dehiwala—6th mile. Under the second stage, the work was carried up to the 9¼ milepost. The third stage, which is now in hand will end in the widening of the road up to the 11½ milepost, i.e., up to Moratuwa Town. From the 8½ milepost up to Moratuwa, a dual carriageway is being provided. Several other sections of trunk and main roads have been widened and improved and provision is made to continue such works under the general votes. The trunk and main roads in and around the City and important towns have to be widened and improved to cope with the growing volume of heavy and fast-moving traffic. The following are some of the roads noted for early improvement and/or construction :—

(*a*) Colombo-Kandy Road,
(*b*) Colombo-Puttalam-Anuradhapura-Jaffna Road ;
(*c*) Colombo-Galle-Hambantota-Wellawaya Road ;
(*d*) Skinners Road South,

(*e*) Darley Road,

(*f*) Cotta Road,

(*g*) Maradana Road—1st Division,

(*h*) New Road from Norris Road to Shorts Road with overhead bridge over Railway.

NEW ROADS

The important new roads which are being constructed with a view to opening large tracts of undeveloped lands for agricultural purposes are :—

(*a*) *Puttalam-Marichukaddi-Mannar-Pooneryn Road*

This forms part of the road being developed as a main road from Colombo to Jaffna via Puttalam and Mannar. Colonisation and Agricultural Development Schemes lie along the areas traversed by the road. The section from Mannar to Pooneryn has already been constructed.

(*b*) *Dankoluwa-Pasgoda Road*

Provides access to a large area which has been taken up for development under the Land Development Scheme. It is approximately 8 to 10 miles in length.

(*c*) *Lower Badulla Road*

This road will serve as an access road to a large area in which Irrigation and Agricultural Schemes are being developed. In conjunction with the existing roads, it is designed to form a short route between Kandy and Badulla.

(*d*) *Nildandahinna-Udapussellawa Road*

This is one of the roads recommended by the Kandyan Peasantry Commission. It passes through yet undeveloped rich agricultural land and will provide access to villages which have no outlet at present.

(*e*) *Alutnuwara-Padiyatalawa Road*

This road will be about 20 miles in length. In conjunction with the existing roads and the bridges now being built at Weragantota, this will provide a more expeditious route between Kandy and the Eastern Province. It will also open up a very large tract of undeveloped country which is now not served by any communications.

(f) Inland Road from Batticaloa to Trincomalee

This road will be approximately 50 miles in length and will be an all-weather road with no ferries. This would make for much more rapid movement of traffic than is possible on the existing route from Batticaloa to Trincomalee. It will also give main road access to a very large area of country.

(g) Poonagala-Meenagala Road

When completed, this will form a connecting link between Gampola and Yatiyantota and will provide necessary access to a large number of villages not now served with roads.

(h) Palugama-Boralanda-Haputale Road

This connects the Badulla-Nuwara Eliya Road to the Colombo-Avissawella-Haputale Road and gives access to a number of villages.

(i) Paranthan-Pooneryn Road

Connects the Kandy-Jaffna Road with the Jaffna-Pooneryn-Mannar Road and traverses rich agricultural land which has not been served with road access so far.

Besides these, plans and estimates are finalised to take up some more roads for construction and improvement according to availability of funds. Amongst these are :

(j) Meegahakiula-Andaulpotta Road

This road is about 14 miles in length and will connect the Badulla-Passara Road with the Bibile-Uraniya-Alutnuwara Road.

(k) Karametiya-Alutnuwara Road

This road branches off from the Badulla-Passara Road and follows the right bank of the Mahaweliganga up to Alutnuwara giving access to a large agricultural area.

(l) Poramadulla-Ekiriya-Bowella Road

(m) Ayagama-Kalawana Road

(n) Madawachchiya-Kebitigollawa Road

This road will provide access to the area which awaits development under the Padawiya Scheme and will also permit extension to provide access to Pulmoddai in the East Coast.

OTHER ROAD DEVELOPMENT

The construction of the Norton-Wanarajah Road Deviation about 3 miles in length is also in hand. This will replace a section of road which will be submerged by the impounding reservoir now under construction in connection with the Hydro-Electric Scheme, Stage II.

A considerable amount of work is being done by the Public Works Department in the construction of bridges, culverts and even roads for the Director of Rural Development from the grant given by the Canadian Government for the development of rural areas.

The roads to serve the Irrigation Department are presently undertaken by that Department. The roads under construction are maintained by them till such time as the areas grow in public importance. Thereafter, the roads are handed over to the Public Works Department for maintenance. There is at present a proposal that the Public Works Department should take over the work of construction of these roads from the Irrigation Department so that the latter could concentrate their energies solely on Irrigation Schemes. The matter is at present under consideration by the two Ministries concerned.

CAUSEWAYS AND FERRIES

There are also the problems of the causeways in the Jaffna Peninsula and the ferry crossings, especially those of the Eastern Province, which the Department has to face.

Around the Jaffna Peninsula are large agriculturally important islands. The agricultural development of these islands depends on either the closing of the gaps between the Peninsula and the Islands or the narrowing of the gaps. The most important of these causeways are :

(1) Velanai-Pungudutivu Causeway

(2) Pooneryn Causeway

(3) Pannai Causeway

Work on the closing of the gaps on the Velanai-Pungudutivu Causeway was begun in 1940 and completed in 1954. This is over two miles in length

and presented many an engineering problem as construction was in the open sea. Work on the other two causeways was undertaken about the same time and the gaps have been narrowed considerably. The Pooneryn Causeway now has a gap of about 1,000 feet and the Pannai Causeway a gap of 5,000 feet. The length of the areas constructed in the former case is over ¾ mile and in the latter over two miles. Provision in a sum of Rs. 1 million has been included in the programme to bridge the gap in the Pannai Causeway completely and to narrow the gap in the Pooneryn Causeway by 1,500 feet. The closing of the causeways may present big engineering problems on account of the strong current in the sea and therefore the work can only be done gradually, and that too after detailed investigations at each stage.

The problem of transport, especially in the Eastern Province, is complicated by the large number of ferries in existence. At present these ferries are served mainly by hand-operated ferry boats. Tolls are levied at most ferries. The policy has been gradually to mechanise the boats till such time as the finances of the country could permit of the construction of bridges or causeways where such construction is feasible. A few mechanical ferry boats are in operation now in the Northern and Eastern Provinces. These boats, both mechanical and manual, are turned out at the Government Factory.

BRIDGES

(*a*) NEW KELANI BRIDGE

A reinforced concrete bridge is being built across the Kelani Ganga at Sedawatte and will be the largest bridge in the Island. When completed it will replace the Victoria Bridge as the most important entrance to the city of Colombo. The latter bridge was constructed over half a century ago for the light, slow-moving traffic of the day and is now unsuited for modern traffic. The new bridge will be 900 feet long and 80 feet wide. There will be provision for six lanes of traffic and two side walks 10 feet wide. The bridge is being built at a cost of Rs. 5½ million by a foreign firm. It is designed to carry the heavier traffic loads, which, in the present context of the Island's development, are bound to be generated. The construction of the bridge will not only ease the traffic congestion at the Victoria Bridge, but will also greatly aid in the expansion of the City north of the Kelani River.

(*b*) OTHER BRIDGES

A statement giving specifications of other bridges under construction appears below :

Specifications of Bridges under Construction by the Public Works Department

Location of Bridge	*Length (Feet)*	*Width (Feet)*
Weragantota	790	22
Gintota	395	40
Polathumodera	830	18 (with 4 ft. pavements)
Talpitiya	130¼	30 (with 4½ ft. pavements)
Ambalangoda (Galle Road)	252	42 (with 5 ft. pavements)
Padirippu	506	18 (with 2 ft. pavements)
Pitipana	489½	12
Thondaimannar	357	18
Narangala	306	18
Maha Oya (Badulla-Batticaloa Road)	304½	18
Awithawa	234	18
Atumale	220½	18
Bataramulla	112½	27 (with 5 ft. pavements)
Nilambe Oya	176	12
Kosgolla	300	18 (with 1½ ft. pavements)
Bridge 12/1 on Colombo-Avissawella Low Level Road	114	22
Heenatigama	96	10½
Ja-ela	100	60 (with 5 ft. pavements)

It may be said that practically all bridges on the roads in Ceylon were designed and constructed for the light, slow-moving traffic of years ago. These bridges, however, have withstood the strain of carrying military traffic during World War II, though of course several bridges had to be strengthened or temporarily supported. There are yet many stressed to the limit and the ever increasing volume of traffic of the present day demands the early strengthening or replacement of these bridges. Provision is being made for taking up some of this work particularly on roads leading to areas of agricultural and land development. Priority is being given to bridges on the following roads :—

(*a*) Colombo—Puttalam
(*b*) Anuradhapura—Habarana
(*c*) Anuradhapura—Killinochchi
(*d*) Habarana—Minneriya
(*e*) Dimbulla—Nalanda
(*f*) Kurunegala—Puttalam
(*g*) Colombo—Galle—Hambantota—Wellawaya—Kalmunai
(*h*) Karaitivu—Inginiyagala

Another pressing need is the replacement of practically all the steel bridges subject to severe corrosion along the coast line, particularly those between Colombo and Matara. Action is being taken to replace them with reinforced concrete bridges as funds permit.

MAINTENANCE OF ROADS AND BRIDGES

The mere building of roads and erection of bridges would not suffice in a country where the elements are unpredictable. Vehicles are on the increase and the jungle is ever ready to come back to its own. Roads and bridges must be maintained. At present the Public Works Department maintains over 550 bridges of over 50 feet span and a large number of smaller ones. A large portion of the net-work of roads in the Island is in charge of the Public Works Department and is maintained by that Department through Departmental Overseers trained and equipped for that work. Necessary plant is provided and maintained in good repair by the Government Factory. An attempt to have maintenance works done on contract has not proved successful so far.

During the war years the road surfaces deteriorated rapidly owing to the heavy wear and tear imposed on the roads by military vehicles and due to the insufficiency of road surfacing materials. Much headway was made during the early post-war period, not only to restore them to their former condition, but also to improve them to take the heavier type of vehicles in use at present. Unfortunately, due to lack of funds in recent years the programme had to be slowed down. Over the last two years, however, the funds voted for road maintenance have increased from Rs. 17 million in 1953–54, to approximately Rs. 19 million in 1954–55 and Rs. 26 million in 1955–56. With the increased mileage of roads being improved and constructed over the six year period it is expected that this vote will progressively increase.

CHAPTER 15

RAILWAY

THE problem of the Railway cannot be understood unless it is viewed in its correct historical perspective. While it is true that at the time the Railway was established in Ceylon there was a popular theory that Colonial Railways were high revenue earners, the basic reason for the establishment of the Railway in Ceylon was the need to develop the plantation areas, and to meet the transport demands of the new agricultural capitalism.

After prolonged negotiations the construction of the Railway began in 1858. It was interrupted after three years. The private company which undertook the construction of the Kandy-Colombo line intimated that it would cost, not £856,557 as originally estimated, but £2,214,000. The Legislative Council annulled the contract in 1865 and the Ceylon Government undertook the construction. The line to Kandy was completed in 1867. The line reached Gampola in 1873 and Nawalapitiya in 1874. It reached Hatton Estate in 1884 and Nanu Oya in 1885. The Colombo-Panadura line was opened in 1887. This line reached Kalutara in 1879 and Bentota in 1890. Lines were extended to Matale and to Badulla. The needs of the export sector in the first instance and later, the desire for better communications in general gave us the railway system we now possess. The figures below indicate the growth of the system from its inception up to 1950 :—

The Growth of the Railway System

Year	*Length of Railway (Miles)*	*Year*	*Length of Railway (Miles)*
1865	34½	1915	692
1875	95	1925	851
1885	181	1928	951
1895	297	1941	951
1905	562	1950	896

Today, however, the original incentive to development in this direction has ceased to exist. There has been a complete change in the pattern of goods carried by the Railway. No longer do our major export commodities,

such as tea and rubber, constitute the bulk of goods carried by the Railway. Tea, which is agriculturally the most important export commodity of the Island representing nearly two-thirds of the total value of our exports, in 1954 constituted only 5.85 per cent. of the total tonnage of the staple commodities transported by the Railway. In the same year, rubber contributed only 1.25 per cent. Today, the bulk of the goods traffic carried by the Railway is imported fuel and foodstuffs.

In the beginning the Railway showed a steady upward trend of revenues and profits. With the advent of motor power, however, one could hardly expect this trend to continue and by the time road construction had caught up with the demand for more and better roads generated by the development of motor power, Railway earnings were on the decline. The impact in Ceylon of these developments was, perhaps, at first masked by the more direct results of the depression when capital expenditures on roads and motors were kept at a minimum. In 1934/35, however, the Railway registered its first loss. Since then, except for a recovery during the war years 1941/42 to 1945/46, these losses have persisted.

The Government cannot, however, leave matters as they are but must accept the challenge to make the Railway pay and not be a burden on the taxpayer. All Railways are passing through a crucial stage in their competition against other forms of transport. In order to meet this challenge, many Railways, the American Railroads in particular, have reorganised themselves or are doing so. The results in other parts of the world have been satisfactory and, therefore, there is no reason why our Railway, if placed on a sound footing and given sufficient competitive power against other forms of road transport, should not be equally successful.

The Railway is still the most suitable form of inland transport for long distance passenger service and big bulk goods traffic of low value. The Railway can also handle much faster and more efficiently than road transport, intensive suburban traffic. In Colombo the need to cater to the growing demands of suburban traffic is already being felt. A planned development of the Railway is, therefore, a very urgent requirement and must be taken up immediately.

The problem of the Railways is two-fold. On the one hand, there is the necessity to arrest the alarming increase in costs; while on the other hand, it is necessary to attract to the Railways an increasing volume of traffic both passenger and freight. The working expenses on account of coal, permanent way materials, and stores and materials have increased from Rs. 5.7 million in 1938/39 to Rs. 29.9 million in 1952/53. Meanwhile, the number of miles run has increased only from 4,640,853 to 6,222,942 showing

an almost 300 per cent. increase in costs per mile on account of fuel and materials. The wages bill has increased during the same period, from Rs. 11 million to Rs. 45 million partly in response to higher payments and partly due to increase of staff.

Another aspect of this twin problem is reorganisation which will be dealt with elsewhere in this chapter. In this connection the proper co-ordination of rail and road transport is of paramount importance. In order to attract more traffic to the Railway it is, of course, necessary to increase its efficiency. The present state of affairs is mainly due to neglect of capital equipment both during the recession of the 'thirties as well as during the war when replacements and renewals were not readily available. The problem has become all the more acute because during the war, as a result of the abnormal conditions of transport, the Railway was compelled to undertake the carrying of loads far beyond its capacity. Increased efficiency, therefore, requires not only extension of facilities but also the replacement of existing worn-out and fatigued equipment.

The Development Proposals

THE SUBURBAN SERVICES

The main proposals for improvement of the suburban services are (*a*) the introduction of colour light signalling between Veyangoda and Panadura and (*b*) the use of four coach units of high power. Colour light signalling is now a standard on most Railways in the world operating suburban services. The signalling is automatic and requires no manual operators. This method of signalling is, therefore, safer than the present arrangement as human errors are eliminated. A considerable speeding up of traffic will be possible as delays in signalling will be cut out as operation is instantaneous.

The use of four coach units of comparatively high power will speed up the present operating schedules. In fact, as far as the passengers are concerned there would be no difference between these trains and electric trains. These train units of four coaches each would be coupled up to form trains of eight or twelve coaches according to the requirements of traffic and will be operated by one set of train crews. The policy, however, will be to run short trains at short intervals instead of running long trains at long intervals as is done at present. It is hoped that when the scheme is completed the public will not need to be inconvenienced by time-tables as trains would be available every five minutes. There is provision in the programme for the purchase of 48 such four-coach units. Only the power units required for

these coaches would be imported. All other coaches will be built by the Railway thus providing employment for about 350 people. The coaches for the first batch of 15 train units are now being built at the Railway Workshops at Ratmalana.

The power coaches of these train units will be equipped with diesel engines. These diesel engines at the present price of coal and fuel oil are approximately one rupee per mile cheaper in operation than steam engines.

THE LONG DISTANCE SERVICES

(i) THE BATTICALOA-TRINCOMALEE RAILWAY

The main proposal for improvement of the long distance services is the re-laying of the railway line to Batticaloa and Trincomalee with heavy section rails as used on the main line. Owing to the light rails used on this section loads have to be reduced and specially designed steam locomotives have to be employed. This is both expensive and slow. Diesel locomotives will be employed when the scheme is completed.

From the point of view of Railway operation not only will the saving in fuel costs be considerable but one of the biggest difficulties in steam operation will be removed, i.e., the problem of water supply. The Railway in this area also depends for its water supply on the various irrigation tanks and in times of drought the supply of water to the Railway becomes an acute problem. This problem will be eliminated when heavy diesel locomotives are able to traverse this section of the Railway. A consumption of over 10,000 gallons of water required for a single run will be reduced to a couple of gallons. These results are now being achieved on the diesels which work on the Northern section of the Railway.

The railway line to Batticaloa and Trincomalee required re-laying in any case as the rails have served their time and are now due for renewal. The extra expenditure on this improvement is only the difference in cost between a light section rail and a heavy section rail. The opportunity to re-lay this line has therefore been utilized to remove what had become a bottle-neck in the Railway. The work of re-laying this line is already in hand and it is expected that this section from Maho to Galoya will be opened and ready for heavy locomotives in September this year.

(ii) MEASURES FOR SPEEDING UP LONG DISTANCE TRAFFIC IN GENERAL

Minor improvements for speeding up long distance traffic are also contemplated. One of the important measures is the re-aligning of the railway track in order that some of the speed restrictions may be relaxed. Though

the maximum permissible speed is now 45 miles per hour on certain sections of the line, the average speed obtained is considerably lower due to speed restrictions on account of sharp curves, weak bridges, &c. With the re-alignment of the track and strengthening of bridges the maximum speed will be increased to 50 miles per hour and some of the speed restrictions will be removed so that high speed could be maintained. A saving of one to two hours on some of the long distance runs will be possible. This saving in time is not only of advantage to the patrons of the Railway but also to the Railway itself. When any single run on the Railway exceeds 12 hours, the locomotives and the coaches are not used for the return run immediately following. Thus, where with an improved time-table a single train can be used, two are now required. The quicker turn-round at terminal stations which will result with the speeding up of schedules, will mean a considerable reduction in the number of locomotives and rolling stock required, and make for savings in the overtime payments to crews. Diesel locomotives on the Railway are capable of running over 600 miles without refuelling or water, and in order to utilise this advantage a general speed up by the removal of speed restrictions in keeping with safety is essential.

Another proposal is for the removal of level crossings where traffic is intense by the construction of overline bridges. The Public Works Department has already in hand a scheme for the removal of the level crossings at Kelaniya on the Kandy road, and the Railway proposes to construct an overhead bridge at the Baseline Road crossing. The removal of these time-wasting bottlenecks, besides speeding up of the Railway schedules, will be a boon to the public as well.

(iii) MINOR IMPROVEMENTS

Provision of longer platforms for long distance travellers to entrain at way-side stations is a normal facility provided by Railway systems in other countries. The development proposals include the provision of such facilities to enable long distance travellers to get on and off without any hindrance at busy suburban stations.

Included in the proposals are those for the improvement of passenger accommodation and provision of better waiting rooms and sanitary facilities at stations and halts. Whilst the suburban traveller hardly looks for these facilities, the long distance passenger, who may have to wait at junction stations for connecting trains, has a right to expect a reasonable standard

of cleanliness and comfort. A good percentage of this work has been done but the work must of necessity be spread over a period of time owing to limitations of funds available for this purpose.

HOUSING AND WELFARE

Housing of staff has been given high priority in the Railway and large 'Housing Estates' have been established at Dematagoda and at Ratmalana. New type quarters have also been put up at many outstations and further provision has been made to provide for more houses, particularly at outstations.

OPERATIONAL AND CONTROL FACILITIES

Operational and control facilities on the Railway are to be modernized in order to keep up with the general improvement in the working of the Railway. The Telephone, Telegraph, Tablet and Track Circuit Systems, which are now under the Chief Telecommunication Engineer for installation, maintenance and repairs, are to be taken over by the Signal Engineer's Department of the Railway for more unified control and cheaper working costs. Modern methods of traffic control will be installed and provision will be made for more efficient control of trains at Maradana by the introduction of automatic signalling. Some of the outstation signalling arrangements are not considered up to the standards of safety required for improved traffic movement. A system of signalling which is cheap and which affords the required degree of safety and speed in working has been evolved by the Engineers of the Department and it is proposed to introduce this system at several outstations. Facilities of Radio Communication will also be introduced between important Railway centres in order to cope with the increasing traffic and for use in the event of a breakdown of the normal telegraph systems of the Railway.

OTHER MINOR IMPROVEMENTS

Some of the other minor improvements proposed are (*a*) a testing laboratory at the Railway Workshops, (*b*) a small steel foundry at Ratmalana. The former is a very essential item for any large workshop attempting to maintain a high standard of workmanship. Certain manufacturing processes require continuous testing to maintain minimum standards of safety and

efficiency. Any defective workmanship or material can have disastrous results in a Railway ; besides, regular testing of supplies is important to ensure that proper materials are being supplied.

Steel castings are not manufactured in Ceylon and urgent supplies are difficult to procure owing to the time taken to import them. There is no reason why a small steel foundry cannot be economically operated here utilising some of the scrap now being exported. The cost of new castings is about ten times the present market value of scrap. An engineer from the Railway Workshops recently visited New Zealand to study the working of small steel foundries which are doing very profitable business there. Earlier proposals by the Railway were kept in abeyance until a decision on the Government steel plant was known as castings would have been available from that source. The cost of a steel foundry in the Railway would be less than a million rupees.

Electrification

THE economics of electrification has been examined both by the World Bank Mission and the Government, and conclusions do not favour such a scheme during the next six years. The cost of electrification at present is about Rs. 300,000 per mile exclusive of rolling stock. Thus the cost of electrification of the whole Railway would amount to Rs. 300 million. The Railway would also require about 80,000 KW. of electrical power to run the whole system. The capital cost of a power plant generating this power would amount to about Rs. 250 million. Thus a total cost of Rs. 550 million would be needed to electrify the Railway. This capital outlay is required to save the cost of imported fuel which amounts to Rs. 15 million per annum.

Where the traffic is intense the possible saving in fuel can be very much higher as the capital cost per mile still remains the same. Electrification of suburban services such as those serving Colombo is an economic proposition. The power required to operate such a scheme up to 20 miles radius from Colombo is about 20,000 KW. It is very unlikely that additional power would be available for this purpose for some time to come and therefore the question of electrification of the Railway or any part of it has been excluded from the programme.

Re-organisation and Other General Questions

WITH a view to increasing the efficiency of the Railway the Government obtained the services of some experts under the aegis of the Colombo Plan. The visit of one of them, a one time Chairman of the Railway Board

of India, will be followed by visits from experts from the British Railways. It is expected that these experts will be able to make some specific contribution to the improvement of the Railway.

It must, however, be pointed out at this stage that the operational costs of our Railway compare favourably with those of other foreign railways.

In spite of the many disadvantages of Railway operation in Ceylon, due largely to the high cost of coal and steel and comparatively higher salaries than paid in other parts of Asia, the cost of operation per million miles is only about 9 per cent. more than the cost of operation of broad gauge railways in India. The total staff employed by the Railway per thousand miles of track is also less in Ceylon than in India. The Railways in India are paying because they have no severe competition from other forms of transport, but in Ceylon the Railway is carrying less than half its capacity. The fixed charges of a railway, which are always high, can probably be reduced only by reducing the services it has to offer or by improving its efficiency. As it is not possible to reduce the former it is the latter measure only that can offer some degree of success in making the Railway pay. The chief remedy of course lies in selling the unused traffic potentialities.

Plans to do so have already been made and some have been put into operation with success. A Departmental Committee has made a number of recommendations and some of the proposals in this programme embody these. Other recommendations have been made by the experts referred to earlier and these are also being examined in detail. Provision has been made in this programme for some of these recommendations. These steps are expected to attract more traffic and it is confidently hoped that the Railway will once again be able to support itself if not serve as a source of revenue to the Government.

In the numerous industrial and agricultural projects which have either been implemented or are in the process of implementation, the Railway has assisted by the provision of special sidings and facilities at the request of the authorities themselves. There can be no question that even under present-day conditions the Railway is ideally suited for the bulk transport of freight and heavy machinery. In fact, the road services do not have the equipment or the carrying capacity to cater to such traffic and the eagerness with which those responsible for every new industrial venture consult the Railway in connection with their transport problems can easily be understood. With the increase in the number of industrial ventures, the Railway will in the future be probably called upon to move an increased volume of traffic. Development in this direction is therefore as important as other lines of development.

CHAPTER 16

PORTS AND HARBOURS

THE Port of Colombo situated as it is on the western seaboard of Ceylon must play a significant role in the affairs of the country. Due to the rapid development of trade and commerce, Colombo has been called upon to handle an increasing volume of traffic far beyond its designed capacity. Severe problems of congestion have, therefore, arisen.

The background

DURING the Dutch and early British periods, Colombo assumed importance on the sea lanes of the Orient. Even as far back as 1830 the aggregate tonnage in open anchorage was 20,000 tons. However, it is only after 1874 that the history of Colombo as an artificial harbour begins. After a close and prolonged investigation, preliminary work for the construction of the south-west breakwater was put in hand in that year. The following year saw the laying of the foundation stone. With the completion of the scheme in 1885, the former open roadstead of Colombo was changed into a harbour that was sheltered on its most exposed side, from the south-west monsoon.

The continued economic expansion and the ever increasing demands of shipping calling at Colombo, however, required the construction of further protective works. The construction of the north-east breakwater, and later the north-west breakwater were completed in 1906. Finally, in 1912 an extension arm to the south-west breakwater was constructed, thus making Colombo a haven of 640 acres of completely sheltered water for shipping.

These improvements have yielded dividends. The net tonnage of shipping calling at Colombo has increased progressively, except during periods of war. The following figures indicate the expansion that has taken place in recent years :—

Port of Colombo—Tonnage Handled

Year	*Ships Calling including Naval Vessels*	*Tonnage of Vessels*	*Tonnage of Trade Handled*
1940	1,848	7,350,937	3,530,384
1950	2,700	12,344,074	4,846,667
1954	2,902	12,712,156	5,028,462

For the past three decades it was considered that the Port of Colombo should be modernised if it were to maintain its position as the seventh busiest port in the Commonwealth. The Port had to face increased competition from other Eastern ports where improvements have been carried out steadily during that period. By 1930, it was obvious that definite plans should be prepared to improve its facilities if it were not to lose trade to its more progressive competitors in the East. There was only one pier alongside which a vessel could be berthed for minor repairs or overhauls throughout the year. Moreover, the Port was almost unique in permitting oil tankers to discharge dangerous cargoes, such as petrol, aviation spirit, &c., in an open berth in close proximity to other shipping. The risks attendant on handling highly explosive and inflammable cargoes under such conditions were too obvious to need emphasis. The enormous damage done when oil tankers did catch fire and explode, even in specially isolated and enclosed areas, was convincing evidence that the risks undertaken daily in the Port could in no way be justified.

THE PRE-WAR SCHEME

By 1936, an approved scheme of development for the Port of Colombo was completed, details of which appear in Sessional Paper VIII of 1936. Based on the recommendations contained therein a sum of Rs. 12 million was provided for certain improvements to the Port. An oil dock with a floating boom across its entrance was to be constructed. The boom was to be a safety measure to prevent oil from a leaking tanker spreading over the rest of the harbour. The oil dock was to be constructed north of the Graving Dock at Mutwal, and next to it a rectangular basin, deep enough for vessels to be berthed along its sides, was to be constructed by excavating the foreshore. The basin was to be, in effect, an enlargement of the harbour. These measures were designed to provide five additional alongside berths, together with a sixth in fair weather. The berths were to be equipped with oil pipelines so that vessels which used oil for refuelling purposes could obtain quickly the supplies they require. However, although the plans and contract documents for this project were prepared, the war intervened and the work of construction had, unavoidably to be deferred.

The Present Project

SOON after the cessation of hostilities the question of improving the Port of Colombo was revived. The experience gained during the war had made it even more evident that Colombo was antiquated as a port and that it required considerable replanning. The introduction of improvements to

enable it to handle cargo in large quantities was urgent. Further, frequent strikes of labour in the Port, immediately after the war, emphasised the fact that the entire dependence of the Port on lighters for the working of ships was a serious disadvantage. The chain of operations from exporter abroad to consignee in Ceylon, and from exporter in Ceylon to consignee abroad, could easily be snapped at the weak link of lighterage, thereby upsetting completely the economy of the Island. It was, therefore, essential in the interests of the community as a whole, that an alternative method of handling cargo without the need for lighters should be provided.

A review of the 1936 plan of improvements indicated that the whole of that plan would not now be suitable. Experience gained during the war in handling food cargoes in the Graving Dock area showed that Mutwal was by no means an ideal site for such operations. The granaries and the Manning Market, the main store-house for rice and other grains in the City, are situated in the Fort, and the go-downs of most private importers of foodstuffs are in the Pettah. The only roads connecting the Graving Dock area with the Fort and Pettah, namely Reclamation Road and Sea Street, are unable at times to cope adequately with the existing traffic. If the main volume of imports into this Island were to be discharged in that area, the existing road facilities would be inadequate to ensure the rapid removal of goods from the harbour premises. Congestion in the warehouses is likely to result. The main advantage of having alongside berths, which enable ships to unload their cargoes quickly would be now lost, as unloading operations would have to be slowed down for want of warehousing space.

There were further disadvantages as well in choosing the Mutwal area for siting the alongside berths. To gain the full advantage of the extra speed possible by handling cargoes out of and into ships berthed alongside a quay, the use of mechanical equipment on a fairly large scale is essential. The Port Commission Workshops of the Port are, however, sited in the Fort area. Unnecessary problems of maintenance and administration would arise if the most concentrated centre of mechanisation were to be situated nearly 2 miles away in the Mutwal area.

From the navigational point of view, too, the provision of alongside berths in an open basin in the Mutwal area of the harbour was not considered to be ideal. The open end of the basin would have to face west and, as this area of the harbour experiences considerable swell and wave action during the south-west monsoon, the sea inside the basin would not be calm. The Master Attendant and the Pilots, the majority of whom possessed long experience of piloting conditions in Colombo, were of unanimous opinion that the basin would not provide satisfactory and safe berths for vessels in all weathers.

There was also the question of the speed of berthing to be considered. Colombo is a port of call, and not a terminal port. Vessels which call here, therefore, wish to stay as short a time as possible, unloading their cargoes and loading fresh cargoes speedily. They then proceed to the next port on their voyage with the minimum delay. Every day spent in an intermediate port increases the cost of the voyage and reduces the profits earned by the vessel. In a port of call, therefore, berths must be easily accessible. It was considered that the quick berthing of vessels in the open basin provided for in the 1936 scheme would not be easy when the basin was already occupied by other vessels. It would be easier, on the other hand, to berth a vessel alongside a pier which jutted out into the existing harbour. There would in this case be no narrow entrance to negotiate. The building of piers is, moreover, a cheaper method of construction than the excavation and building of a basin, quite apart from the expensive acquisition of land which the latter involves.

As a result of all these factors it was decided that, apart from the oil Dock, the proposals embodied in the 1936 plan of Port improvements should be abandoned, and that instead of providing alongside berths in a basin to be constructed north of the Oil Dock, alongside berths should be provided by—

(1) converting the existing north-east breakwater into a solid quay, to be known as the north-east breakwater quay, alongside which two vessels could be berthed ;

(2) constructing a pier into the harbour with its base extending from the existing Passenger Jetty to the edge of the existing Lake-to-Harbour Canal. (This pier was to be known as the Delft Pier and would provide four berths for medium-large sized vessels and one berth for a small vessel of the coaster type which plies between Colombo and Tuticorin) ;

(3) constructing a pier into the harbour from the root of the existing south-west breakwater. (This would provide three berths for the largest regular passenger vessels calling at the Port such as the new 30,000 ton P & O. and Orient liners. This pier was to be known as the south-west Pier).

(4) constructing a modified and simpler form of oil Dock in approximately the same position as suggested in the 1936 plan, which would provide two berths for the discharge of oil from tankers ; and by lengthening the Guide Pier by 200 feet. (The re-orientation of the Oil Dock would afford greater protection to vessels using it. The lengthened Guide Pier would enable two vessels to be berthed alongside it instead of one as at present).

To sum up, these new proposals would provide (in addition to the Oil Dock which was also a part of the 1936 scheme) 14 alongside berths. The construction of the Delft and south-west breakwater piers, however, encroached on the existing water area of the harbour, with the resultant loss of six existing berths in the south-west monsoon and five existing berths in the north-east monsoon. The net result was that the Port would benefit by eight to nine additional berths depending on the monsoons. This was an improvement on the five to six additional berths which the 1936 scheme was to provide.

The new scheme also had the advantage that the pier method of construction to be employed was simpler and relatively cheaper than that of excavation. Further, the scheme did not disturb the existing centre of cargo handling activities. This made it possible to use the existing road facilities providing ingress to the Port. No construction of approach roads on any large scale was, therefore, necessary. The siting of the cargo handling centre under the new scheme also had its advantages over the 1936 scheme, on account of its proximity to the workshops, granaries and go-downs, and the offices and ancillary establishments of private importers and agents. From the point of view of convenience to passengers the new scheme had the undoubted advantage of providing a point of disembarkation as near as possible to the hotels and shops.

The 1936 plan was accordingly laid by and it was decided in 1949 to adopt the scheme of development outlined above. On June 28, 1950, the first stage of the development of the Colombo Port was launched with the signing of a contract with a French firm. Certain ancillary works were to be carried out by the Harbour Engineer's Department. The scheme is due for completion during the next financial year.

REVIEW OF PROGRESS

Work on the construction of the three quays has been more or less completed, though road and rail approach facilities, water supply, and electric lighting have not yet been provided. The Mutwal quay is, however, in partial use and will be put into full operation very soon. The terminal building too is nearing completion. The oil Dock is in partial use with the completion of the North Pier. The South Pier, which is seventy-five per cent. complete, will be ready soon and the oil Dock will then be in full operation. The locks at McCallum Road are complete and the construction of the Marine Drive is in hand. Mechanical cargo handling equipment is on hand and awaiting installation.

COSTS AND BENEFITS

The Port Development Scheme is expected to cost, on a revised estimate, about Rs. 99.3 million. The *added* revenue prospects arising from the completed scheme are indicated below.

On a rough estimate approximately 20 per cent. of the labour charges of Landing Companies would be saved on lighterage resulting from alongside berthing. If this were appropriated by Government there would be a revenue of approximately Rs. 1 million. Alongside berth fees at 8 cents per net registered ton would bring an added revenue of Rs. 687,000. It is expected that more ships will use the Port because of the quicker turn-round. As a result, a modest estimate of increased revenue on port and pilotage is Rs. 525,000. Profits arising from oil bunkering facilities and the supply of water to shipping are expected to rise by Rs. 1,125,000. The increase in warehouse rent from added warehouses is estimated at Rs. 300,000. The total of added revenue prospects is in the neighbourhood of Rs. 3,600,000.

It is possible that there will be further revenue accruing from the increased dues on such port facilities as the Graving Dock, but it is difficult to set a value on this at present. There will also be a considerable saving to Government in the handling of Government cargoes (including food cargoes), which is not reflected in the above estimate of Rs. 3.6 million. It might be mentioned that the Inner Dock completed in 1935 was the only major work constructed since the completion of the breakwaters at the beginning of this century.

It is an accepted fact that cargo can be handled quicker at alongside berths than by lighter. If Colombo is to maintain its position in the face of competition from neighbouring ports where modern facilities exist, then adequate alongside berthing facilities such as the above scheme allows, must be provided.

Further, in order to benefit to the fullest extent by the quicker rate of cargo handling thus made possible, such ancillary improvements as well-designed warehouses and wider lake to harbour locks must also be undertaken.

Development in the Six-Year Period

APPROXIMATELY Rs. 60 million had been spent on the Port Development Scheme up to the end of 1953/54. The balance Rs. 39 million is being

spent in the first two years of the six-year period. This sum provides also for the construction of a Fishery Harbour at Mutwal at a cost of roughly Rs. 6 million. In addition, a number of other development items (containing a major component of equipment) are to be undertaken concurrently with the main Port Development Scheme. These additional improvements are designed to exploit to the maximum capacity the advantages that will arise on completion of the main Scheme. Further details regarding these improvements are contained in the relevant schedules appearing elsewhere in this volume.

Other Development Items on Ports and Harbours

IN view of the heavy demands made on the Port of Colombo, the Government has also decided to develop the Ports of Galle, Trincomalee and Kankesanturai and satellite Ports. These will help to encourage and assist local trade and industry without making too great a call on the country's present financial resources.

It is proposed to make a start in the development of Galle Harbour by undertaking a hydro-graphic survey by partial dredging, by making certain improvements to anchorage equipment, by the construction of new quays and jetties with road and rail access, and by the construction of warehouses on these jetties and the provision of fumigation facilities for rice.

It is considered that the development of Galle Harbour is very desirable as Galle is the principal town in the south-west region of Ceylon. The development of the harbour will permit it to handle the trade of the region more conveniently and economically than at present. It will also assist the development of the eastern and southern regions, which are today centres of development activities. The total cost of this project is estimated to be Rs. 4,650,000.

As regards the Kankesanturai Harbour, plans for this undertaking are under investigation. The development of this port will be of great advantage to the Government Cement Factory and will also assist trade with South India. The estimated cost is expected to be around Rs. 4,350,000.

The opening of a commercial port in Trincomalee with improved road and rail facilities to the North-Central and Eastern Provinces will, in conjunction with irrigation and colonisation schemes, help materially to open up a new part of the country by providing better and cheaper transportation. Rs. 250,000 has been provided for preliminary surveys of Galle and Trincomalee Harbours.

CHAPTER 17

POST AND TELECOMMUNICATIONS

THE maintenance and improvement of a system of communication to cope with the rising demands of the business sector of the economy is undoubtedly of much importance in any programme of investment undertaken by the Government. Under the Ministry of Posts and Broadcasting there appear three departments, namely, Posts and Telecommunications, Radio Broadcasting and Meteorology of which the former two are directly connected with proper communications. For reasons which will become apparent during the course of the discussions below the total investment to be undertaken under the six-year programme amounts to Rs. 73,363,000 of which Rs. 68,863,000 is for Posts and Telecommunications, Rs. 3,500,000 for Radio Broadcasting and Rs. 1,000,000 for Meteorology. The development programmes with regard to Radio Broadcasting and Meteorology are discussed in the chapters that follow.

Posts and Telecommunications

THE Post Office combines the characteristics of a department of state performing an essential public service and a large business undertaking. No department of state touches the every-day life of the nation more closely than the Post Office. It provides communication and other general services closely bound up with the economic and social life of the country. Its functions include the maintenance of a telegraphic system together with telephones and wireless communication, besides a host of miscellaneous services like, for instance, a Savings Bank; its activities concern every business firm, every family and every citizen. Today in one connection or another the Post Office counts practically the whole nation among its customers and its services extend to the most distant parts of the globe.

Thus it would seem that the operations of the Post Office are responsive to the variations in the tempo of most forms of activity in the country.

One way to consider the department's problems is to review them as they pertain to modern conditions. The only data with some relevance to present problems are those of today. It is desirable that one should take a look at the current postal problem in a current setting.

The current state of development could be gauged by the facilities provided per 100,000 persons. A comparsion of the statistics of the countries in South East Asia with those of Ceylon reveal that we are better provided with these facilities than most countries in this region. The position with regard to Ceylon is indicated in the table below.

Postal and Telecommunication Facilities

Year	*Item*	*No.*	*No. per 100,000 of Population*
1952–53 ..	*Postal Facilities :*		
	Post Office (235), Sub-Post Offices (1,075) and receiving offices (166)	1,476 ..	18
1952–53 ..	*Telephones :*		
	Exchange lines 13,608 and extensions 8,138 ..	21,746 ..	269
1952–53 ..	Total internal telephone calls	3,701,990 ..	457,758
Year ending			
1953 ..	Post Office Savings Bank Depositors accounts ..	2,242,748 ..	27,696
1952–53 ..	Ceylon Postal Orders issued ..	2,294,668 ..	28,334
1952–53 ..	Money Orders issued	3,523,636 ..	43,509
1952–53 ..	Letter and letter packets handled ..	27,572,388 ..	2,365,673
1952–53 ..	Postal parcels handled	2,328,031 ..	28,746
1954 ..	Radio licences	83,457 ..	1,030

But these services have been provided in recent times more by the ingenuity of adaptations than by adequate outlays on much needed equipment or accommodation. The rapidity of the increase in demand for these services can be gauged from the following table.

Increase in Postal Services — Number

Indicator	*Year* 1938	*Year* 1953
Radio licence holders	6,000 ..	69,000
Telegrams	1,366,000 ..	9,679,000
Internal telephone calls	8,556,000 ..	37,072,000
	(1940)	
Money orders dealt with (local and foreign) ..	1,344,000 ..	3,524,000
Postal parcels handled	809,000 ..	2,328,000
Letters, postcards and letter packets handled ..	87,073,000 ..	272,572,000

The above expansion has resulted in a heavy strain on the existing capital installations. Undoubtedly they would have to be renewed in order to avoid a total breakdown. Moreover, proper accommodation for equipment and personnel has become an urgent necessity for an efficient service. The programme of investments during the six-year period and the period immediately after seeks to meet these problems.

POSTAL SERVICES

At the commencement of its rule the British Government established a postal system for the conveyance of official letters, which were carried daily by runners. Post offices were set up at Colombo, Trincomalee, Jaffna, Mannar, Galle and Matara. In 1832 a mail coach service was set up between Colombo and Kandy.

The development of roads and railways speeded up the progress in postal services. In 1895 the number of post offices and receiving stations were 139 and 148 respectively : by 1903 they had risen to 149 and 190 respectively. Postal facilities continued to be provided increasingly in the towns. After 1931, however, rural areas came into the picture to a greater extent. The year 1947 heralded a drive to establish sub-post offices in rural areas so that no village area was left unserved. As a result when in 1946 there were 363 Sub-Post Offices, at the beginning of 1951 there were 769. In 1952-53 their number rose to 1,075.

Large scale extensions of the door to door postman delivery network were undertaken, especially in the rural areas, during the last few years in an effort to see that almost every citizen would have his letters delivered at his door. This policy is being continued, and the vastness of the undertaking will be realised when it is known that where there were only about 1,250 delivery postmen in 1947, there are today nearly 2,550. Similarly, additional posting facilities have been made available by the provision of over 4,000 letter boxes in the island after 1947.

The policy of motorisation of mail transport and extensive use of bicycles has reduced considerably the transit time of postal articles. The last few years also saw the inauguration of a departmental mail transport service in Colombo, and between Colombo and some nearby non-rail route Post Offices and Sub-Post Offices. There are now 79 motor vehicles in the departmental mail transport service. Most other motor mail transport is effected by the use of vehicles in the private transport services. Where there were 66 contract mail services in 1947, there are 156 today.

Quite apart from the vast extensions of its service effected by the Post Office, in recent years it has also undertaken functions of other departments like, for instance, the payment of teachers' salaries, public assistance monthly allowances, pensions, &c. This extension of its service has led to the use of unsuitable accommodation. Postal buildings, for instance, are very often rented residential buildings with nominal alterations carried out to suit the demands of a Post Office. In fact, Colombo's mail sorting office was never originally intended to be one for this type of work. If this scheme of things is to continue the efficiency of the postal service can very well be impaired. The aim now is to put up buildings designed to meet the requirements of the expanded service and to have them suitably equipped. This applies also to Colombo's mail sorting office which is to be so constructed as to serve the special requirements of such an office.

TELECOMMUNICATIONS

HISTORICAL ASPECTS

The development of telecommunication in Ceylon can be divided into 4 distinct phases : viz., the period before 1935, the period between 1935 and the outbreak of War in 1939, the war years, and the years that followed.

Before 1935, there was little demand for telephones and the telegraph service. The telephone service in particular was mainly used by Government Departments and the larger business establishments. Residential telephones were practically non-existent. The Government, moreover, did not find it economical to provide telephone services to estates in planting districts. Planters' Associations were therefore licensed to instal and operate their own telephone systems. The 1930 depression caused a severe setback even to this small demand for telephone services and there was a sharp drop in the number of telephone subscribers.

About this time the Department was faced with a serious problem. The Colombo telephone exchange which had been in use for about thirty years was showing signs of breaking down. Replacement had been long overdue, and had been postponed from year to year because of the depression. The condition in outstations was no better, and there was an insistent demand that something should be done to improve the service. Finally, in 1935, the State Council voted funds for a long range development programme to modernise the telecommunication services and to replace the old manual exchanges in Colombo and outstations with automatic exchanges. It was also decided to take over the private exchanges in the planting districts and to provide automatic exchanges instead.

The next five years saw a great spurt in the development of the telecommunication service. The Colombo exchange was replaced with an automatic exchange of 5,000 lines. Twenty-three of the 32 private exchanges in the planting districts were taken over and converted to automatic working, and no less than 97 automatic exchanges were installed in outstation towns.

The outbreak of War in 1939 brought a halt to the rapid development that had been taking place. This was, however, not an altogether unwelcome event. The training of technical staff to maintain the service had not been keeping pace with this development, and the Department hoped to catch up in this respect. This hope, however, was belied with the entry of Japan into the War and the selection of Ceylon as the Headquarters of the South East Asia Command. Not only were the premises of the Departmental training school taken over for War purposes and the School closed down, but the Department was called upon with its limited resources to provide as best it could the entire communication requests of the Fighting Services, Civil Defence and Essential Government Departments. Training of personnel continued to lag behind, and the service itself was maintained with difficulty owing to the lack of spare parts and necessary equipment.

The War and immediate post War years saw a big increase in trade and business activity which again created an unprecedented demand for telephones—a demand which the Department was unable to meet. This unprecedented demand for telephone service was not confined to Ceylon alone. It was a world-wide phenomenon. As a result, manufacturers found it impossible to cope with orders. Delivery periods of equipment indented for by Ceylon were of the order of two to three years. The department was therefore compelled to maintain a growing waiting list of applicants for telephone service. The waiting list of applicants in 1947 totalled 4,758.

During the period 1947-1953 considerable development in this field took place. The table below shows the growth of some of the main items of telecommunication plant during this period. The growth of telephone subscribers and exchanges, both automatic and manual, during this period was also considerable. This increase, however, was totally inadequate to meet the rising demand. Although the Colombo exchange capacity was increased by 3,000 lines, the waiting list contained as many as 5,756 applicants at the end of 1953. The main causes of the Department's inability to meet all

demands were a shortage of trained personnel, delay in the supply of equipment during the early years of the first plan period, lack of funds during the later years of the same period, and lastly lack of accommodation.

Growth of Main Items of Telecommunication Plant during the First Six-Year Plan Period 1947 to 1953

Number

	September, 1947	*September*, 1953
	As at end of period	
Subscribers telephones	13,128	23,198
Sub-Post Offices provided with telegraph and telephone facilities	316	739
Overhead wire mileage	35,265	45,934
Underground wire mileage	46,778	70,559
Automatic exchanges	132	179

Accommodation has in recent years been one of the biggest problems of the Department. The problem has been acute both in Colombo as well as in the outstations. The main difficulty has been in respect of suitable sites. The choice of sites in any town is limited to a small area, as a telephone exchange has for purposes of economy in line and plant, to be situated centrally with regard to its subscribers. In a large number of cases it has been found impossible to secure suitable sites even after several years of effort. This has been the cause of the Department's inability to meet the demand for telephones by the installation of larger exchanges. The problem of accommodation is an urgent one and the investment expenditures to be undertaken by the government in the programme is intended to solve it in some measure. These expenditures will also go a long way in replacing equipment, the approved life of which is over or which to some degree is obsolete.

OBJECTIVES

The foregoing discussion gives an indication of the problem facing the Department at present. Broadly speaking, the goal of the Department is to provide telephone service to all the 6,800 applicants now on the waiting list and to have sufficient exchange capacity installed so that an applicant will not have to wait for any length of time to be provided with his telephone. It is intended to extend by degree telecommunication facilities to rural areas and villages throughout the Island. It is also the aim of the

Department to develop the trunk telephone network so that a trunk call from one part of the Island to any other part can be given without the delays that now occur. Likewise it is intended to improve the existing inland telegraph, and the ship/shore radio telegraph and telephone service so that all messages are dealt with, with speed.

To achieve these broad results it will require a much larger expenditure than that provided in the programme, and a much longer time than six years. It has to be remembered that the greater the number of subscribers the greater becomes the demand for equipment and trained personnel. Moreover, the development programme of the Government in other spheres of activity during the six-year period is bound to result in an increasing demand for telecommunication services from both the public and private sectors. However, the programme drawn up for this period is expected to go a very long way towards reaching the goal set by the Ministry.

In drawing up its programme for the six-year period the Department has been guided by the recommendations made by a British Post Office expert who visited Ceylon in 1950 to examine and report on the telecommunication services of the Island (Sessional Paper No. V of 1951). The Department's programme which was submitted to the World Bank Mission, envisaged a total expenditure of Rs. 74 million, exclusive of buildings for which an additional Rs. 12 million was requested. The World Bank recommended a reduced programme as they considered that the execution of a programme of Rs. 74 million in six years would be a difficult task. A revised programme has since been prepared which envisages an expenditure of Rs. 57 million, to be spent during the six years 1955 to 1960 on the projects outlined in the schedules. This figure excludes proposed expenditures on buildings. Should additional funds become available the remaining projects listed in the Supplementary Schedule will also be undertaken.

PROGRAMMES AND PROJECTS

Equipment

The programme of telecommunication development for the six-year period consists of a number of projects. However, though classed as individual projects, they are in a great measure interlinked with one another. The two most important projects, and the ones on which the greater proportion of the expenditure is to be incurred, are the development of the Colombo telephone exchange together with associated telephone network and the development of outstation telephone exchanges.

Colombo Exchanges and network. In the case of the Colombo exchanges it is intended to replace the present exchanges with new automatic ones of an initial subscribers' capacity of 20,000 lines, and to provide a new trunk exchange comprising about 100 operators' positions. The main exchange of 10,000 lines as well as the trunk exchange will be installed in a new seven storeyed building that will be put up in the present Central Telegraph Office premises. The remaining 10,000 lines will be provided by means of 4 new satellite exchanges of about 2,500 lines capacity each, situated in Maradana, Havelock Town, Kollupitiya and Kotahena. In addition to the Colombo Exchanges about 20 suburban exchanges, such as Mt. Lavinia, Moratuwa, Nugegoda, etc., will be replaced with new types which will enable subscribers connected to these exchanges to obtain Colombo by direct dialling instead of, as at present, obtaining the call through Colombo trunk exchange. Likewise, Colombo subscribers will also be enabled to obtain suburban subscribers by direct dialling.

The project also includes large increases in the number of trunk lines radiating from Colombo to outstation exchanges. The main items under this head are the provision of underground trunk telephone cables to Galle and Avissawella (estimated to cost about Rs. 8 million), and V. H. F. (Very High Frequency) radio telephone links to Kandy, Hatton, and Nuwara Eliya, estimated to cost about Rs. 2½ million. These works will provide circuits not only to the towns mentioned, but also to all stations intermediate as well as beyond.

Completion of this project will enable the Department to clear the waiting list of applicants in Colombo and its suburbs, and to eliminate largely the long delays that now occur in completing trunk calls.

Outstation exchanges and network. This project envisages the installation of larger automatic exchanges or the increase of capacity of existing exchanges, in outstation towns where large waiting lists now exist. In many of these cases new buildings will be put up to provide the necessary accommodation. Additional trunk and junction lines will be provided between these exchanges to enable calls to be given without delay. It is expected to provide 550 additional trunk and junction lines, thereby increasing the present number of 500 lines to 1,050.

All repairs to postal and telecommunication equipment are carried out in the Department's Workshop, which also undertake manufacture of various new items of equipment. The existing premises of the Workshop and as well as of the adjoining Telecommunication Stores are badly congested and unsatisfactory in every other respect. A 15-acre site on reclaimed land at Maradana has been obtained to house these two important

activities of the Department. It is proposed to build a new workshop with the funds provided under this project. The construction of new Stores is put on the Supplementary Schedule of Projects owing to non-availability of the necessary funds at present.

Telephone facilities for Sub-Post Offices. It is the Government's policy to extend postal and telecommunication facilities by degrees to the remotest rural areas and villages. The funds requested under this project will enable the provision of telegraph and telephone facilities to about 300 sub-post offices. The project also provides for the extension of these facilities to the Police, Medical Institutions, and Revenue Office in these areas.

Accommodation including accommodation for Postal Services.

Postal and Telecommunication work has so overwhelmingly outgrown the accommodation provided by Post Office Buildings that accommodation has become one of the very major problems requiring priority attention. The magnitude of the problem will be best realised when it is known that in Colombo alone, the headquarters administrative, operating, accounting and engineering organisations require 450,000 sq. ft of accommodation for anything approximating satisfactory working conditions whereas it has become necessary for all these branches to pack themselves into about 230,000 sq. ft. of space. In the outstations, numerous Post Offices (which also do telegraph and telephone work) require even as much as three and four times the accommodation for immediate requirements. The need for twice the accommodation is more the rule than the exception. Inadequacy is not the only problem in accommodation that has to be solved. Unsuitability of accommodation for mail sorting, telephone operating and security of overnight cash is an equally pressing problem.

Very little was done on a planned basis to improve accommodation in the years preceding World War II. On the other hand during the war no improvement was possible. The post war period has belied the earlier anticipations of some " experts " that with the cessation of hostilities, war traffic would disappear and traffic conditions would become normal. With the return of peace, although war traffic did disappear the various agricultural, educational, medical, social, industrial projects, &c., coupled with the switchover to self-governing status, served not only to retain war traffic levels but also to maintain steady increases. Further, functions of other departments are being delegated to the Post Office, e.g., payment of teachers' salaries, feeding allowances, public assistance allowances and pensions. Even Treasury offices are being opened in some Post Offices. The number of Sub-Post Offices today is 1,122, whereas in 1939, the number was only 216. The cumulative effect of all these various types of increased work and the delegation of the functions of other departments to this

department have created as mentioned above numerous accommodation problems both in Colombo and in the outstations.

It will thus be seen that what is necessary is a comprehensive plan to provide accommodation not only to relieve the present acute congestion in all branches of the department, but also to meet the needs of the foreseeable future, having regard to the present rate of development of Postal and Telecommunication Services.

The buildings included in the present programme fall therefore into two categories, viz. (*a*) Postal, (*b*) Engineering. The buildings under category (*a*) are :—New Mail Sorting Office, Post Office Buildings in outstations. The buildings under category (*b*) are :—New Central Telegraph Office building and 4 satellite exchange buildings, New Workshop building, New Telegraph Stores building and Auto-Exchange buildings in outstations.

The Mail Sorting Office. This is at present housed in a semi-permanent building in Lotus Road where the accommodation is both inadequate and unsuitable. Nearly 50 per cent. of the site has been allocated to various religious bodies who are pressing for its early possession. A new up-to-date mail sorting office (which incidentally has been planned for over 20 years) is an urgent necessity. The Colombo Mail Sorting Office is the pivotal centre of all main traffic in the island. Its importance can be realised when it is known that nearly 250,000,000 items of postal matter per annum are handled in this office by 1,500 employees.

Postal Buildings at Outstations. Outstation offices are in two broad categories, viz. Full-fledged Post Offices and Sub-Post Offices. Accommodation problems do not arise in Sub-Post Offices as the accommodation required is very little and the Sub-Postmaster has to provide it.

As regards full-fledged Post Offices, the following information is of interest :—

Analysis of Post Offices

Number

Type of Office	*In Government Buildings*	*In Rented Buildings*	*Total*
Large ..	.. 28	.. 5	.. 33
Medium ..	.. 19	.. 53	.. 73
Small ..	.. 36	.. 88	.. 123
Total	83	146	.. 229

In the case of large and medium sized offices, specially designed buildings are essential. Special designs are imperative for counter accommodation; public halls, special postal fittings, precautions against loss, security of overnight cash, &c. Landlords are not willing to erect such buildings because it is uneconomical for them to do so, as they will have to incur further expenditure in re-adapting the building for private use. Where large and medium sized offices are housed in rented buildings adapted for the purpose, the working conditions and accommodation are deplorable. Landlords do not want to provide extensions or even carry out the normal maintenance repairs. They aim to have the department out of the building as they could obtain better rents in the open market. Relations between the Landlords and the department are therefore strained. The solution to this problem is the provision of Government buildings for all large and medium sized Post Offices. In the first Six-Year Plan it was possible to provide only seven such buildings due partly to a curtailment of funds and to the time taken in the designing of the buildings. In the present six-year period it is proposed to construct 22 new buildings according to special standardised designs. This will help to relieve the accommodation position considerably but a similar investment will have to be carried forward to the following six-year programme.

New Central Telegraph Office Buildings and Satellite Exchange Buildings. Reference has already been made to the new Central Telegraph Office building in the section on the Development of Telecommunications. This building is expected to provide about 83,000 sq. feet of accommodation to house the new automatic telephone exchange and connected equipment and the Overseas Telecommunication Service Branch (formerly Cable & Wireless Ltd.).

Satellite Buildings

These buildings will be comparatively small buildings of modest construction providing in each case accommodation of about 15,000 sq. ft.

New Workshop Building

Mention of this building too has already been made elsewhere. The land being made available for this purpose is in the process of being filled up by Unemployment Relief Works labour. The site will become available for building in the latter part of 1956.

New Telegraph Stores Building

Funds for this building have been excluded from the present six-year period. This is an urgent item which should be given very high priority in the next programme. Some improvement is, however, expected in the present accommodation for stores when the Workshop moves out to its new premises. But this cannot be regarded as a permanent or satisfactory solution as these premises are housed in Railway land and the Railway has requested the return of their premises for their own expansion.

Auto Exchange Buildings in Outstations

New buildings, specially designed, to house the new automatic exchanges to be provided in various parts of the island during the present six-year period will be erected. The number of such buildings is expected to be about 94 and they will be erected at such stations as Anuradhapura, Trincomalee, Ratnapura, Puttalam, Negombo, Kegalla, Galle, Kandy and Bandarawela.

OVERSEAS TELECOMMUNICATION SERVICE

The Ceylon Government purchased the assets of Messrs. Cable & Wireless Ltd., on June 1, 1951, and assumed responsibility for the running of this organisation. which is now known as the Overseas Telecommunication Service (Ceylon). The purchase was conditional on the Ceylon Government undertaking a development programme to improve the Overseas Telecommunication Service. This programme which was estimated to cost Rs. 3,475,000 was provided for and is being carried out.

Ceylon is an actively working link in the world system of telecommunication and is guided by the advice of the Commonwealth Telecommunication Board in the running of the Overseas Telecommunication Service. Owing to scientific advancement in telecommunication, the systems and techniques are subject to frequent changes in order to provide the best and most reliable service. The object of each country is to provide the best and latest equipment and attract more traffic. Unless we keep pace and successfully face competition, Ceylon is likely to lose a large volume of traffic.

The investment of Rs. 705,000 asked for in the present programme is for meeting the cost of new and improved equipment which the Ceylon Government may be required by the Commonwealth Telecommunication Board to provide. It has been possible, however, to allocate for the present, a sum of only Rs. 500,000. It is hoped that funds would eventually become available for the allocation of the full sum of Rs. 705,000 originally mentioned.

CHAPTER 18

BROADCASTING

BROADCASTING in Ceylon commenced in the year 1925. Progress in the early years was extremely slow because broadcasting was an incidental activity of the Posts and Telegraph Department. Shortly before the war, however, plans were made to develop broadcasting on a national scale which involved the building of up-to-date studios. The war, unfortunately, prevented these plans from being carried out.

After the war, the building of the new studios in Colombo, was started and was completed in 1949. On the engineering side, the principal developments were the construction of a new 15 kilowatt medium-wave transmitter, which was brought into service in December, 1945, and the handing over to Ceylon by the British Government of the Radio SEAC short-wave transmitters, including one of 100 KW. The present Broadcasting Department came into being in 1949.

The overall plan for the development of Broadcasting consists of three major item viz :—(*a*) Replacement of transmitters, (*b*) The establishment of Regional Studios, and (*c*) Ekala-quarters for staff and an administration Block. Items (*b*) and (*c*) are, however, in the Supplementary Schedule to be taken on only if funds permit.

The Replacement of Transmitters

THE existing medium-wave transmitters are those taken over from the Posts and Telegraph Department and the short-wave transmitters are those taken over from Radio SEAC. The latter are ex-Service equipment re-conditioned to meet the immediate needs of the Station. They are now obsolete and are inefficient by the standards of the new transmitters. The four short-wave transmitters presently at Ekala are in fact over 15 years old and need urgent replacement because they are out-dated models and therefore maintenance is becoming well nigh impossible owing to the non-availability of spare parts. They are also inefficient in that current consumption is very heavy and they do not conform to international efficiency standards.

The existing medium-wave transmitters are located at the Welikada site which has been condemned as unsuitable from so many points of view. They are not powerful enough to give any coverage beyond the Colombo area. The listeners in the rest of the Island are now supplied by

the short-wave transmitters at Ekala but the reception is of poor quality. With the wide variety of material being broadcast from Radio Ceylon today, and the very rapid increase of the number of licences which indicate the growing interest in radio among the population, the Government is obliged to improve its transmission and provide listeners who pay a licence fee with the best possible reception. Though the licence fee is the same in Colombo as elsewhere, outstation listeners suffer a distinct disadvantage. To give good quality reception within any country, broadcasting organisation aim at medium-wave transmitters because these are less subject to interference, fading, etc. From this point of view, broadcasting in Ceylon is still very much undeveloped.

To provide full medium-wave coverage, two schemes were worked out—

(*a*) to provide regional transmitters at different centres of the Island in order to give medium-wave coverage throughout the Island. This scheme was estimated to cost Rs. 10 million.

(*b*) to instal 100 KW transmitters at the Central station to give satisfactory coverage of the whole Island. This Scheme was estimated to cost Rs. 7 million but experts could not agree whether on account of the mountain regions, full coverage would be obtained. Running expenses of this scheme were also found to be very heavy.

The scheme now worked out is intended to provide reasonable improvement in the service with the least expense to Government. This scheme takes into account the running expenses in relation to population distribution, the wastage of medium-wave power over large tracts of sparsely populated areas, the limited telecommunication facilities at present available for a regional scheme and the distribution of the listening public.

The installation of high-powered medium-wave transmitters at a suitable site outside Colombo has been receiving the attention of the Department for some time. The Broadcasting Commission also has pointed out the necessity for the installation as being very urgent. It has therefore been decided that at the outset four 50 KW transmitters should be installed and experiments are proceeding to determine the best location. It is expected that this station will cover about half the Island by medium-wave. Due to the difficult terrain of the country, it has not been possible to plan one station which will cover the whole Island. The intention is to have the main station of the description given here installed under this current programme and then consider what can be done for the areas left out.

An extent of about 100 acres of land will be required for the purpose. The buildings required will be a transmitter hall and quarters for the essential staff. The other equipment required will be a stand-by power plant and the necessary material for obtaining power supply from the Hydro Scheme. The total cost of the scheme is expected to be about 3.5 million rupees of which the details are indicated below.

Break Down of Total Cost

	Rs.
(a) Medium-wave Transmitting Station	
Four 50KW medium-wave transmitters	1,500,000
Two 700 foot self-radiating masts	580,000
Acquisition of 100 acres of land	300,000
Earth system and feeder lines	70,000
Power supply including stand-by generators	350,000
Buildings	200,000
	3,000,000
(b) Short-wave Transmitters	
Two 10KW short-wave transmitters	500,000
Total ..	3,500,000

Regional Studios

THE Broadcasting Commission has recommended that with a view to saving expenditure in getting down artistes to Colombo and to the encouragement of local talent, it is necessary to have a number of recording studios in a number of towns. It is proposed to start with two of these in Jaffna and Kandy within this six-year period. Each of these is expected to cost Rs. 100,000 making a total of Rs. 200,000.

Quarters and Office Buildings

EXTENSIONS to the buildings at Ekala for better working accommodation for staff are essential. It is also necessary to extend the present transmitter hall to house the new transmitters. The only staff building available at Ekala is the old estate bungalow which has been set apart for the Engineer (Transmitters). The rest of the staff live quite apart from Ekala. It is necessary to provide accommodation for the senior staff to live close to the station. For these requirements, it is intended to provide a sum of Rs. 220,000 details of which are given below.

Break Down of Cost

	Rs.
Transmitter hall and an administration block	75,000
Quarters for staff	145,000
	220,000

CHAPTER 19

METEOROLOGY

THE Meteorological Services are of considerable value in the economic development of a country. They are vital in the context of agricultural development, aviation and irrigation. They are also of importance in industrial undertakings, in health measures, control of soil erosion, and flood protection. Indeed the " weather " or " climatic " factor cannot be left out of account in any activity of man, either in peace time or in time of war.

Although during the last seven years, to meet the needs of the growth of civil aviation in Ceylon, the Department was enlarged and developed by the recruitment of additional personnel into the scientific and technical grades, the training abroad of graduate personnel in aviation weather forecasting and allied subjects, the establishment of a radio sonde station and W/T receiving and transmitting station, yet the Meteorological Service has still considerable leeway to make up to rise to international standards and be able to meet all demands made on it in respect of the various types of meteorological information required.

Lack of sufficient trained scientific personnel, laboratory and workshop facilities, equipment and office accommodation is a serious handicap to the undertaking of research into local meteorological problems. Abundance of data are daily accumulating waiting to be tabulated, analysed and studied. Testing, calibrating and standardising of instruments are still being carried on in the crude old methods.

Efficiency and quality of the work at provincial Meteo stations are in danger of deteriorating at some places owing to the lack of office accommodation and mostly owing to the non-availability of living quarters for the officers, who are expected to be on shift duty at all odd hours of the day or night. To run an efficient service these are urgent needs.

It is obligatory that any national meteorological service should conform to internationally agreed standards in order that close collaboration with neighbouring national services could be maintained on a basis of mutual benefit. The failure of one national service to conform to international standards would impair the efficient functioning of the others.

The aim of this Department is therefore to enlarge and develop into an efficient national service to meet the varied type of information required by local and world organisations which utilise meteorological data.

A Forecast Centre working a 24-hour schedule was established at Ratmalana Airport in January, 1952 for taking over all meteorological commitments for civil aviation, which until then were met by the British Air-Ministry Meteorological Office at Negombo Airport. In January, 1953 all forecasting responsibilities for R. A. F. aircraft using Negombo airfield were also taken over by the Ratmalana Forecast Centre. To meet the rapid development of Ratmalana as an International Airport it is planned to enlarge considerably the Forecast Centre by installing new up to date standard equipment and providing trained personnel to interpret the data and issue forecasts.

Communications are vital for the work of a Meteorological Service. Installation of more receiving and transmitting equipment than is now available, duplication of the T/P channels between the Observatory and Forecast Centre and a corresponding increase in the W/T and T/P Operator personnel are needed.

It is proposed to establish an Instrument Division in charge of a graduate officer of Meteorologist grade with suitable engineering qualifications and trained in instrument designing at Air Ministry Establishments and Instruments Manufacturers in England. The workshop and laboratory will be placed under his charge.

A Research Division in charge of a qualified Meteorologist will be established for undertaking original investigations into problems of tropical meteorology. The problems of seasonal forecasting could then be tackled resolutely. Research will be undertaken on both " long-term " and " short-term " forecasting.

It is also planned to establish a Radio Wind Station. The present method of obtaining upper wind data by the use of pilot balloon is inadequate, for by this method greater heights are not possible to be explored. Wind data at very high altitude are essential for the present day high altitude flying, for example, the comet service.

When the Department took over the entire responsibility for civil aviation as well as that for R. A. F. aircraft the available office accommodation, equipment and workshop facilities were inadequate. Moreover, there was no proper laboratory.

Towards the implementation of its policy the Department has planned a project including additional buildings and equipment. The buildings programme covers the erection of a laboratory and a workshop at Colombo Observatory and the extensions to the Administration block to allow for office accommodation of increased staff. The setting up of a Radio Sonde/Radar Station is an important part of the building programme. This structure will include building for reception of signals, calibration and storage rooms, quarters for watchers and labourers, water and electricity services.

The building of offices and quarters for officers at outstations was stayed as a result of financial stringency. It is now proposed to recommence this programme. Offices for Nuwara Eliya, Trincomalee and Ratnapura are included in the proposals. Quarters for officers at outstations have so far been provided at two stations only. At the others they will have to be provided as funds become available.

The Forecast Centre is in urgent need of standard meteorological equipment for its efficient functioning, while at most of the outstations instruments have to be replaced by new and up to date ones. Equipment for the Forecast Centre at Ratmalana and the Meteo offices at KKS Airport and other important meteo stations throughout the Island and the augmentation of the W/T and T/P equipment with the supplementing of the communication channels between the Colombo Observatory and the Forecast Centre are integral parts of the project.

The ultimate aim is to bring the Service in line with those of neighbouring countries. The Forecast Centre at Ratmalana will then be able to meet all demands made on it by a first class International Airport. Instruments to suit local requirements and apparatus necessary for research and experiments will be designed and made at the Department's workshop. All repairs to the instruments will be undertaken without having to send them abroad for the purpose.

A full implementation of the programme aims at the solution of the meteorological problems of seasonal, short-term and long-term forecasting, the preparation and publication of statistics necessary for Aeronautical planning, industrial undertakings, agricultural developments, irrigational schemes and health surveys.

Under the plan Rs. 500,000 will be spent to put up the buildings that are required. A further Rs. 500,000 will be spent on the purchase of equipment.

There is also a supplementary item of Rs. 400,000 for further purchases of equipment which will be carried out, if financial conditions become favourable enough to expand the present programme.

CHAPTER 20

CIVIL AVIATION

IN the field of civil aviation, the main objective of the Government will be the development of the Ratmalana Airport to international standards. This decision has been taken after very careful consideration in view of the high cost of the necessary improvements. The advances in aviation which took place during the last war period made almost every principal air terminal in the world obsolete. The air ports of London, New York, Santa Cruz, Sydney, &c., have all kept in step with the technical advances.

The most convenient air route from west to east should lie naturally through Colombo. The absence of a well equipped civil airport in Ceylon, however, tends to divert much potential traffic elsewhere. Investment in this regard is both urgent and imperative. The rapidly increasing demands on our airports in spite of what has been said above can be gauged from the following table :—

Development of Air Services through Air Ports in Ceylon

	Tonnage of Aircraft Arriving	*No. of Passengers embarking or disembarking*	*Tons of Airmail handled*	*Tons of Air freight*
1944 ..	5,344	6,632	118·9	127·2
1954 ..	89,760	78,668	510·0	1,362·0

The importance of an airport cannot be measured solely in terms of the revenue earned by it. It is not a commercial venture, it is primarily a public utility. Its usefulness to trade, commerce and industry are incalculable. Ceylon being an island in whose economy external trade plays so vital a part must take positive action to combat its insularity. The encouragement through its territory of passage of foreign air transport services which are revolutionising the relationships of mankind, re-designing the pathways and cross-roads of trade and commerce, and removing the handicap of remoteness is one of the means to this end. While it may be argued that the available resources of the country may be better utilised in the short term for other development projects which will increase

production, there can be no question whatsoever that in the long run it would be unwise for us to lag behind in our airport development and thus surrender our natural advantage in position to other countries not so favoured. Already a sum of Rs. 22 million has been expended on the Airport and unless Ratmalana Airport is developed to international standards, this investment of Rs. 22 million will not reap its full benefit. The present Airport falls far short of standards required for the reception of the modern types of aircraft, as laid down in the rules of the International Civil Aviation Organisation of which we are a member. Unless urgent measures are taken airlines will begin to by-pass Ratmalana Airport.

Development Proposals

THE main lines of development in the sphere of aircraft construction and design are now more or less definitely settled for some years to come so that it is no longer necessary to postpone the airport development scheme. Even if the future presages bigger aeroplanes than those built at present, they can in all probability be accommodated as the advances in aeronautics may also enable take offs on short runways.

About five years ago the services of an expert from the Civil Aeronautics Administration of the United States of America were obtained by courtesy of that Government and his report on the Colombo Airport has been published.

The expert's recommendations as regards the development of Ratmalana Airport may be summarised as follows :—

(1) Ratmalana Airport to be developed to ICAO Class III requirements by constructing a new east-west runway, taxiways and apron.

(2) Maintenance of the existing runway to be continued for use by small aircraft.

(3) Lighting of the Airport for night operations.

(4) Improvements to administration buildings.

(5) Several other improvements regarding the radio range and communication station.

(6) High Frequency Direction Finding facilities to be provided.

It was then decided to give the preparation of plans, designs and specifications to Aeroport de Paris, a French firm. This firm's main offer to supply two solutions including plans, estimates, &c., at a cost of Rs. 255,000 was recommended to be accepted by the technical committee appointed for the purpose. Aeroport de Paris is a French Government Agency specialising

in the construction of Airports and they have had a hand in constructing some of the more important airports in Europe. The Aeroport de Paris recommended—

either (1) Construction of the new runway, new taxi-ways and apron. Reinforcement of the existing runway and taxi-way.

or (2) Lengthening and reinforcement of the existing runway and taxi-way.

According to the estimate, the total cost of constructing a new runway, taxi-ways with a flexible pavement together with the cost of reinforcement of the existing runway and taxi-ways was Rs. 21,860,000. The cost of a new runway, new taxi-ways and reinforcement of the existing runway and taxi-ways in concrete was Rs. 26,260,000. This excluded the cost of property acquisition. According to the Consulting Engineer an acreage of nearly 109 acres will have to be acquired. The Chief Valuer has made a tentative valuation of this at Rs. 3½ millions.

The second solution for lengthening and reinforcement of the existing runway and taxi-ways was estimated at Rs. 12,300,000. It was, however, suggested that the widening of the existing runway and its lengthening by about 150 feet could be left for a later date, thus making the total cost only Rs. 10,550,000. Under these proposals the total acreage to be acquired will be less than under the first solution. After careful consideration the Government decided to adopt the second proposal in view of the limited resources at its disposal and in view of the fact that it would not result in the demolition of any houses. This proposal would mean that the cost of maintenance would also be much lower. The lengthening of the existing runway at a cost of Rs. 12,300,000 would be sufficient for nearly all aircraft and with the rapid development of aerodynamics it would be possible that this runway would meet requirements for the immediate future. This proposal, together with others which would contribute towards the common goal of the development of Ratmalana Airport and its ancillary facilities to international standards are estimated to cost approximately Rs. 18 million. The whole scheme besides the strengthening of the existing runway, includes provision for additional and better equipped terminal buildings, establishment of up to date radio communications and navigational aids, airport lighting, water supply and sewage systems, and quarters for staff stationed at the airport. These improvements should bring Ratmalana Airport up to international standards and encourage additional airline operators to make use of the airport.

B—Social Services

CHAPTER 21

EDUCATION

THE radical changes in our educational system which took place after 1945 related not only to the extension of educational facilities but also to the content and style of education. Numerous problems have arisen in putting the new policy into operation. New buildings had to be erected, staff provided, arrangements made to meet the expansion in administrative responsibilities especially regarding school inspections and examinations, and the changes in curricula. For example, there were the problems of implementing the practical bias given to education, the policy of using swabasha in the upper forms, and of religious instruction in State schools.

School Population and School Buildings

THE number of children at school increased from 867,309 in 1945 to 1,613,512 in 1954. The increase during this period was due mainly to the free education scheme, and the increase in population. It is a matter of pride and satisfaction to note that today, of the total number of children of school-going age (4-14 years) in the Island, 74 per cent. are at school. This is the highest for any Asian country, with the sole exception of Japan. This high percentage of children receiving an education will have widespread repercussions on the future social and economic structure of the country.

The increase in the school-going population was only made possible by an increase in the number of schools. For example, in 1948 there were 3,091 government schools, and 3,118 aided schools making a total of 6,209; in 1954, the number of government schools was 3,581, and assisted schools 3,147 totalling 6,728—an increase of 400 schools in six years.

During the last 7 years the Public Works Department has constructed buildings for 8 Training Colleges at a cost of approximately Rs. 5,000,000. The Public Works Department also undertook the construction of 50 central schools and 40 senior and junior schools costing approximately Rs. 26,000,000. Of these, about 45 schools are complete and work on 45 schools are in progress. The Education Department also undertook the construction of buildings costing over Rs. 30,000,000 of which over Rs. 25,000,000 has been spent up to the end of the last financial year. The buildings consisted of 116 new schools, 445 extensions and 260 replacements

providing accommodation for 93,000 pupils. In addition to the above, repair works costing over Rs. 10,000,000 have been carried out during the past 7 years.

In addition, Parent Teachers' Associations and Rural Development Associations have provided 730 buildings, both permanent and semi-permanent, free of cost to Government. Over 50 buildings have also been constructed by Parent Teachers' Associations and Rural Development Societies on a subsidy basis. Twenty-one workshops were constructed on contract at a cost of Rs. 315,000. Ten others costing Rs. 90,000 were erected by Parent Teachers' Associations without cost to Government. All these workshops were constructed with prefabricated materials.

School Building Programme

UNDER the Six-Year Programme provision of a sum of approximately Rs. 63 million has been made for extensions and improvements to, and the construction of, Training Colleges and Government Secondary and Junior Schools. Rupees 18 million has been provided for the purchase of equipment for these institutions. School workshops, Junior Technical Schools and related equipment are together estimated to cost Rs. 12 million. An Institute of Practical Technology is at present being constructed at a cost of a little over Rs. 4 million.

Teachers and Teacher-Training

THE increase in the school-going population necessitated an increase in the supply of teachers. In 1947 there were 27,710 teachers; in 1954 this number had risen to 49,283. Apart from mere numbers, steps were taken to improve the quality of teachers. In 1947 all Government and Aided Training Colleges were completely reorganised. The quality of the lecturing staff was improved by the appointment of Trained Graduates as Heads of Training Colleges and the appointment of Graduates and Secondary trained teachers as lecturers. The new Training Colleges are a vast improvement on the old. They are residential institutions and provide not only pedagogic training but also opportunities of education for the teachers. The corporate life of a Training College is organised and conducted by the trainees themselves who are expected not only to take part in class-room work but also in many extra-curricular activities.

The progress made in training teachers can be gathered from the following: In 1945 there were 1,367 teachers under training while in 1955 there are as many as 2,972 men and women in our Training Colleges. Expenditure in teacher-training rose from Rs. 500,000 in 1947 to Rs. 2,355,000 in 1954.

In order to improve the quality of the teacher in-service, courses have been organised in the last 2 years in all the Provinces. Among them must be mentioned the classes in General Science and English for Swabasha teachers, and the special classes held to prepare these teachers for the Teachers' Certificate Examination and Entrance Examination to Training Colleges. Regular vacation courses have also been organised.

All these were largely attended by Swabasha teachers and these courses are contributing very materially to the improvement of the Swabasha teacher on whose work the future of our schools will largely depend.

Inspectorate

THE Inspectorate too had to be expanded to meet the needs of the increased number of schools. In 1948 there were 117 Inspectors. In 1955 the number had risen to 226. The development of special subjects in our school curriculum also led to the appointment of specialist inspectors in Physical Education, Home Science, Handicrafts, Art, Music and Agriculture. In 1948 there were only 34 such Inspectors. Today there are 79.

Swabasha Education

THE medium of instruction in the S.S.C. Prep., will be in swabasha in 1956, and in 1957 swabasha will be used in the S.S.C. Final. This decision involves the necessity of producing the text books and the background literature required by the schools. A new Department—the Department of Swabasha—has been established to produce the necessary glossary of scientific terms and the text books for the S.S.C. in those subjects in which no suitable books now exist. This department will then see to the provision of text books for higher studies.

Already a glossary of terms in Mathematics and Science has been published in Sinhalese and Tamil, and at present several Committees are at work preparing glossaries of terms in Social Science, Chemistry, Physics, Botany and Zoology. This work will be completed at the end of this year.

The introduction of Swabasha, especially into the higher Forms made necessary increased courses of Teacher-Training. In 1954 one hundred teachers were selected for special swabasha training in Science and Mathematics at the Government Training College. This scheme will be continued into the future. A scheme of subsidised private tuition has also been organised for teachers of the S.S.C. Prep and S.S.C. Classes who need further training to do their work in swabasha. A general course of training

has been outlined by the Department but the actual conducting of the classes has been left to the Principals of the Colleges. Officers of the Education Department have been instructed to assist these classes.

Religious Instruction in State Schools

IT is obligatory on Government Schools to provide religious instruction should there be over 15 pupils of a particular religion. While there are many Government Schools with Hindu, Buddhist and Muslim pupils there is hardly any Government School, except those few in the city of Colombo and other large towns at which there are over 15 Christian pupils. Three Advisory Committees for Buddhism, Islam and non-Roman Christianity have been set up to advise the Director of Education in regard to religious education. Syllabuses approved by these committees have been prepared. The syllabus for Buddhism has been issued to all Government Schools in Sinhalese areas and the syllabus in Islam has also been issued to schools where there are teachers competent to teach the pupils. The syllabus in Hinduism has not yet been finalised. The National Christian Council has prepared a revised syllabus and this has been adopted for teaching non-Roman Christianity. In conformity with the desire of His Grace the Archbishop of Colombo no instruction is given on Roman Catholicism in Government Schools.

Examinations Press and Confidential Room

THE Printing Press of the Department of Examinations which is at present housed in the Ceylon Technical College premises was found, at the end of 1952, to be both unsuitable and inadequate for work required by the Department. Besides, the Technical College itself had been pressing for the restoration of these premises in view of its own expansion. Provision was, therefore, made for the construction of a special building on new premises to house the Printing Press. This building was specially planned, keeping in mind the need for security, for the efficient and prompt printing of question papers and of various regulations, forms, &c. The building is almost complete and it is expected that occupation will be possible by the end of this financial year.

With the proposed shifting of the Department to a new site a special building was found necessary to house the Confidential Section of the Department. This section deals with most of the confidential work relating to examination question papers and answers scripts. Provision has been made for a building specially designed to meet the vital requirements of the

Confidential Section. Special attention has been paid to the necessary security conditions. The blueprint for the building has been already prepared by the Public Works Department and approved. It is expected that work will commence early in the next financial year and that the building will be completed before the end of the same year.

Technical Education

TECHNICAL Education is an aspect of developmental activity which is most important in our economy. It appears in a number of spheres where public investment and public policy play a role. Nearly every government department has some form of technical education for its staff—some of which is carried out in specialized institutions. The Ministry of Labour too has a special interest in this field and acts as a link with the private sector in matters of technical training.

Technical education will be provided by the Ministry of Education not only through the general system of education but also in specialized institutes like the Ceylon Technical College, the proposed Institute of Practical Technology that is to be built with Canadian Aid, the three proposed Junior Technical Schools two of which are to be built with New Zealand Aid, the Trades School and the College of Fine Arts. The Ministry of Transport and Works runs a Basic Technical Training Institute. A technical training bias also appears in the curricula of Certified Schools and in the Prisons, which institutions are the responsibility of the Ministry of Home Affairs.

Prior to 1950 there were few handicrafts sections in schools and those which existed were housed in temporary and ill-equipped buildings. A move was made to create a body of vocationally-trained teachers who were given training at the Ceylon Technical College. In 1950 the first batch of students became available for duty in handicrafts sections. Since 1950 under the Colombo Plan Scheme a small number of specially selected teachers have proceeded to U. K., Australia and New Zealand for special training in Handicrafts work.

In 1951 the post of Organizer of Handicrafts was created and the person appointed was an experienced officer who had had practical experience in earlier years. After his appointment he was sent to Australia for observation of technical methods used there. It was due mainly to his efforts that technical subjects were introduced for the G. C. E.

It was felt, however, that practical work was of such importance that an adviser should be recruited from overseas to assist the Education

Department. Under the Colombo Plan Technical Co-operation Scheme and at the invitation of the Ceylon Government, the New Zealand Government loaned one of its most experienced officers, Mr. W. J. B. Hunter. This officer joined the Department in July, 1953, and will remain till the end of 1956.

TECHNICAL EDUCATION BRANCH

In 1953 the new branch was set up within the Department. In 1954 on the recommendation of the Adviser, four Inspectors of Handicrafts all of whom had been overseas for advance training, were appointed. In 1955 an additional four were appointed ; provision has also been made for the appointment of two Head Office Inspectors as from October 1, 1955. The branch has been placed under the control of the Chief Inspector of Schools who was sent to New Zealand on a study tour in 1954. In the meantime the Adviser handles the technical work of the branch.

HANDWORK IN PRIMARY SCHOOLS

A revised syllabus has been drawn up under the guidance of the Adviser. This has been adopted and has been sent out in the first instance to Training Colleges after which it will be implemented in the schools. No specialized equipment is required. Encouragement is given to the use of local materials. It is considered that the first step in breaking down any prejudice in the use of the hands must be taken through the medium of the primary schools.

HANDICRAFTS IN SECONDARY SCHOOLS

The White Paper of 1950 recommended that handicrafts should be taught side by side with other subjects in the Secondary Schools. By a process of gradual development the schools could assume a multi-course role in which " streams " of students could study a common " core " of general subjects but flow towards special courses, e.g., academic, industrial, commercial, agricultural, &c. A drive has been made therefore to set up efficient workshops at the Secondary Schools. Using Colombo Plan aid given by the U. K. and Australia, 193 new sections have been created.

For her part Ceylon supplied new workshops using pre-fabricated materials and also some 3,000 units of workshop fittings based on the most modern designs. A large range of blue-prints of New Zealand origin were

sent out to the schools receiving Colombo Plan equipment together with a quantity of illustrative data. A useful handbook was compiled and has been distributed for the guidance of teachers of woodwork and metalwork. The workshops are being set up in a manner comparable with those overseas and are now functioning efficiently.

It is recognized that a Secondary School could not possibly cope with Vocational Training, i.e., the training of persons for a large variety of specific occupations. What is aimed at is to provide a sound basic education with some practical bias. Worldwide experience has shown that for boys the best basic crafts are woodwork (not "carpentry" which presupposes the training of participants as carpenters) and metalwork. The crafts considered suitable for girls depending on the local environment are lacquer work, cloth weaving, basketry, pottery and coir work.

Where workshops have been installed, handicrafts have been made a compulsory subject at Junior Secondary levels whilst encouragement is given for Senior School students to continue their practical studies to G. C. E. levels. Attention is given especially at Junior School levels so that if a person fails at the Fitness Test the scope for his obtaining employment will at least have been broadened.

The equipment now supplied under the Colombo Plan is much more extensive and of a more modern design than that formerly supplied. The first phase of equipping operations is practically complete and the Technical Education Branch is about to embark on a new phase. Australia has already agreed to supply 80 sets of woodworking equipment whilst further assistance with other types of equipment is likely to come from the U. K.

The purpose of handicrafts in a school is not to train boys to become carpenters, blacksmiths, &c., but to train a pupil to use his eyes, his hands and head in doing something constructive. This kind of activity will develop a pupil's talents in the field of practical work and in course of time fit him for a sphere of work in which his talents will give him scope and ability. It is to be borne in mind that these forms of practical activity are not merely manual but also intellectual and their purpose is educational not vocational.

JUNIOR TECHNICAL SCHOOLS

Reference had been made in the White Paper of 1950 to the need for Polytechnics. The Adviser found himself in agreement with the principle but recommended that, in the early stages, the schools should be of a more junior nature. The term Junior Technical Schools has, therefore, been adopted.

The Department acquired a building at Galle and this is being converted into a Junior Technical School. The equipment is being provided by the U. K., Canada, Australia and New Zealand. The New Zealand Government had provided capital aid to the extent of £90,000 (Rs. 1¼ million) for the establishment of similar schools in Kandy and Jaffna. Plans for these institutions are being drawn up by the Public Works Department.

In 1954 the Honourable Minister of Education requested a Committee to investigate the courses for the proposed technical schools.

The Committee keeping in mind the probable expansion of Ceylon's industries coupled with the mechanisation which would result from the increased use of electricity, recommended that the basic courses for all Junior Technical Schools should be, in the first instance :

(i) Carpentry/Joinery/Cabinetmaking

(ii) Fitting/Turning/Machining

(iii) Motor Mechanics

(iv) Electric Wiring

(v) Commercial Practice.

The schools should include other courses if there was proved local or regional demand for them.

Entrants to the school would be persons who had attained Standard VIII but not necessarily having passed the Fitness Test. Courses were to be of three types :

(i) Pre-trades course of two years. It is hoped that Industry will, in future, recruit from the ranks of the personnel leaving such schools.

(ii) Day-release courses for apprentices already engaged in industry.

(iii) Evening courses for apprentices or tradesmen desirous of improving their techniques.

In the first year 80 full time students per school could be admitted. There would be a further 80 in the second year. The Committee was unanimous that the numbers should be kept fairly low since even with the specialist training there could be no guarantee of employment. The numbers admitted to day-release classes and evening classes would be in accordance with local demand.

The building plans are being prepared at the moment while the equipment has not been imported as yet. The Department hopes the schools will be ready to operate in January, 1956.

An Inter-Departmental Co-ordinating Committee on which the Department is represented is considering training programmes for apprentices. The curricula of the Junior Technical Schools will be based on their findings. The closest liaison is also being maintained between the Adviser and the Director, Ceylon Technical College, in order that the Education Department's programme will accord with those of the Trades School and the Institute of Practical Technology which are undertakings under the Ceylon Technical College. Staff will have to be recruited from Industry. Some suitable young men have already been sent to New Zealand for special training as trades instructors.

MAHARAGAMA TRAINING COLLEGE—HANDICRAFTS DEPARTMENT

It is now realised that the training originally given to our vocational teachers embraced too many subjects to permit a full understanding of them all. The Adviser recommended a special training department at the Maharagama Training College. The Department built a large new modern block for which the equipment came from New Zealand. New Zealand also loaned two expert instructors for a period of one year.

The new Department commenced operations in January, 1955. The present position is that students with a special bent for practical work are given a two-year course in one of the following :—

(i) Woodwork practice and technology and technical drawing

(ii) Metalwork practice and technology and technical drawing

(iii) Craftwork practice and technology and technical drawing.

In addition they take certain normal teacher-training subjects and eventually are classed as Secondary Trained Teachers (Handicrafts). These teachers are not trained to a stage where they could teach tradesmen (who must be trained by tradesmen) but they are capable of teaching handicrafts at Secondary levels. The number in training at present is 50 whilst another 50 will be admitted in 1956. The Department possesses sufficient equipment to train a larger number, if required.

Technical College and Associated Institutions

THE development and popularity of electrical power, the increasing use of motor vehicles, an expanding building industry and the rapid growth of trade and commerce have created a large demand for persons with

technical training of various kinds and at various levels. Provision is made in the Programme for meeting the training needs of these classes of workers and supervisors.

It is difficult to state with any degree of exactitude the annual vacancies in these occupations. However, an expert under the Colombo Plan who made a survey of this field was of opinion that this country needs approximately 140 engineers, 1,400 technicians (presumably including charge hands) and 3,520 skilled workers as the annual replacement to compensate for the normal wastage which is approximately 4 per cent. of the total employed at any one time. Although these figures seem somewhat high they may be considered as the ideal and they indicate the magnitude of the training demands to be met.

The training of engineers is at present the responsibility of the Faculty of Engineering of the University. The Ceylon Technical College is the only Institution which caters for the training of the middle grade skills. Apart from the Basic Technical Training Institute and the Ceylon Technical College there are no other educational Institutions which cater for the training of artisans.

Demands for technical training are to be met not only by stressing the practical side of general education but also by the establishment of special institutions during the six year period. An Institute of Practical Technology will be set up to cater to middle grade skills and a Trades School to cater to the lower grade skills.

INSTITUTE OF PRACTICAL TECHNOLOGY

The Institute of Practical Technology is to be established at Katubedda within the Urban Council of Moratuwa and a suitable site of 57 acres has already been acquired. This Institute is to be a residential one. It is designed so as to be capable of accommodating up to 500 students at any one time. For a start, however, there will be 300 full time students of whom 200 will be provided with hostel facilities. It is expected that about 130 technicians will pass out each year.

It will provide full-time day courses for :—

(i) Technicians for the following categories :—

(*a*) Works service (Civil Engineering)

(*b*) Building

(*c*) Electrical and Radio

(*d*) Woodwork

(*e*) Metal work

(*f*) Automobile

(*g*) Chemical Engineering.

(ii) Appentice Draughtsmen, Surveyors and Levellers, Superintendents of Village Works, etc., and,

(iii) Courses designed specifically for Departmental needs such as for the Telecommunication, Electrical and Irrigation departments.

It is also proposed that the training imparted at the Institute be completed by a further year's practical training under field conditions (in appropriate Government departments or private engineering firms).

It will also provide part-time day courses for Engineering Apprentices, i.e. those apprenticed to Chartered Engineers or in Government technical departments who are preparing for the examinations of the professional bodies. The evening classes will continue to be conducted as at present for the benefit of those who are already in employment.

The entire project is estimated to cost Rs. 4,145,000. The Canadian Government has very generously allocated Rs. 3,500,000 for this project and an additional Rs. 500,000 is being sought from the same source. A sum of Rs 1,000,000 has already been received.

TRADES SCHOOL

The Trades School is to be established in Colombo, which is the centre of industrial activity. Colombo and its environs have in fact over 50 per cent. of the total employed in industrial concerns and it is therefore appropriate that the Trades School be sited within easy access of the major industrial units. The present premises of the Ceylon Technical College with further extensions will be made use of for the purpose. The Building Section which requires an extensive area for practical work will be sited at Drieberg's Avenue on land that is being reclaimed.

It is proposed to provide instruction in six major groups of trades, viz : (*a*) Building, (*b*) Electrical, (*c*) Motor, (*d*) Wood Work, (*e*) Metal Work, and (*f*) Printing. Both full-time and part-time courses (for those from industry) are proposed.

When the School is functioning to capacity there will be about 400 full-time and 900 part-time students at any one time. It is expected that about 450 will pass out from the School each year.

In view of the closer supervision required in the training of artisans (skilled workmen) the tutorial staff required is also large. It is estimated that 70 Instructors will be required when the School is in full operation. Of this number the majority will be skilled craftsman specially trained for the purpose.

A National Trades Certificate (of an appropriate grade) will also be awarded to those who successfully complete the courses at this School. The advantage of a National Certificate scheme is that it can embrace trainees from other institutions as well, thereby ensuring uniformity in standards of attainment.

The total cost of this project is estimated at approximately two million rupees. The cost of acquisition of site and the extensions are estimated to cost about Rs. 925,000 while furniture, lights and fittings would cost about Rs. 125,750. The equipment for the Workshops is estimated to cost about Rs. 932,250.

COLLEGE OF COMMERCE

The development of Trade and Commerce necessitates the training of workers in various clerical and allied skills. Apart from the large number of book-keepers, stenographers, salesmen and the like, a considerable number of persons with professional qualifications in Accountancy, Secretarial Practice, Banking, Insurance, Transport and Management are needed. Their training is as important as that of the technicians and tradesmen.

At present the facilities available, especially for the training of the professional categories, are very limited. It is therefore proposed to develop the present Commerce Section of the Ceylon Technical College into a fully fledged College of Commerce. This College will provide a complete range of studies in Commerce. When it is in full operation there will be about 750 students and about 200 will pass out each year.

The College will continue to be housed in the present premises and as such no expenses of a capital nature except for equipment will be involved. The equipment needed is estimated to cost approximately Rs. 107,500.

The University of Ceylon

THE University Commission recommended that the University of Ceylon should be unitary, residential and autonomous, and the Ceylon University Ordinance No. 20 of 1942 made provision to carry out this

recommendation. The Ceylon University College and the Ceylon Medical College were merged into the University of Ceylon when it was set up on July 1, 1942.

The unitary character of the University is reinforced by the provisions of the Ordinance relating to residence. It provided that the seat of the University shall be in or near Kandy and that the undergraduates shall reside in Halls of Residence. At the start the Faculties were established in Colombo but with the necessary buildings being erected in the University Park at Peradeniya the Faculties of Arts, Oriential Studies, Agriculture and Veterinary Science moved to Peradeniya in 1952. When all the buildings at Peradeniya Park have been completed there will be residential accommodation in the Halls for every undergraduate in the Faculties of Oriental Studies, Arts, Science, Law and Engineering. The Faculty of Medicine will continue in Colombo. A second Medical School will ultimately be established at Peradeniya.

The University when it was first mooted was designed to provide accommodation for 1,000 students. The Cabinet, however, increased the number to 1,200 students. The original estimate for the complete scheme is Rs. 53,000,000. The Public Works Department proceeded with the work on this basis. The number of students has since increased to 1,600 at Peradeniya and about 600 in Colombo. Within the existing scheme more accommodation is being provided so as to increase the output of Science and Medical graduates. The ultimate objective is a student population of 4,000.

The original estimate had to be revised consequent on the increase in the student numbers. A revised estimate of Rs. 90,000,000 was submitted to Cabinet but this was considered excessive. The subject was subsequently discussed with the Ministries concerned and the Public Works Department which was charged with the responsibility of executing the work. Consequently, provision for certain items of work was reduced and the revised estimate now stands at Rs. 83,000,000. The increase of Rs. 30,000,000 over the 1953 estimate of Rs. 53,000,000 was rendered necessary due to additional work decided upon which *inter alia*, included provision for a Faculty of Engineering.

In addition to the provision made under the National Development Reserve for buildings at Peradeniya, provision was also made under Loan Fund Expenditure for an Administration Block and a Pathology Department attached to the Faculty of Medicine at Colombo. These buildings are nearing completion and no expenditure is envisaged beyond 1955-56. In regard to the University buildings at Peradeniya financed from the National Development Reserve, it has been decided to carry out the work

according to a set programme and for this purpose Government has decided to release Rs. 33 million of which Rs. 5 million will be spent in 1954-55, Rs. 8 million in 1955-56 and Rs. 5 million during each of the years from 1956-57 to 1959-60 inclusive. Any unexpended balances of any one year are to be carried over to the years following.

Aesthetic Education

INCREASING attention has been paid by schools to Aesthetic Education of students. A measure of the change in attitude is provided by the total number of Art Inspectors. From 1932 to 1946 there were altogether one Inspector of Art and two Assistant Inspectors who were expected to cover the entire field of Art teaching in schools. By 1951 there was a Chief Inspector of Art and nine Inspectors, one for each province, in order to meet the demands of the changing situation.

The All-Ceylon School Art Exhibition of July, 1949, marks a turning point in the progress of school art. For this exhibition as much as 5,000 exhibits were received of which 640 were hung. From this date both local school exhibitions and Ceylon's participation in international exhibitions of Child Art have been frequent. Ceylon has benefited greatly by the promotion of Art by the UNESCO. The response to the efforts of a small number of enlightened Art Teachers and the Art Inspectorate has been gratifying. Works of Ceylon children have been exhibited in Australia, India, U.S.A., Italy, Japan, and the United Kingdom. Further invitations for participation have been received from Sweden, Japan and New Zealand.

Meanwhile changes were made so as to improve the training of Art teachers. The syllabus of the Art teachers' courses has been revised. Refresher courses for these teachers have been organised at various provincial centres. Schools were financially assisted in purchasing brushes, colours, paper, &c.

The promotion of Art in schools today seeks on the one hand to discover and train talented students and on the other to promote a better sense of appreciation of things artistic. Specialised training is now provided in the Government College of Fine Arts, which grew out of the original Arts and Crafts section of the Ceylon Technical College.

THE GOVERNMENT COLLEGE OF FINE ARTS

Since its independent establishment this institution has made much headway in spite of many handicaps due to inadequate accommodation,

equipment and staff. Over 3,000 applicants seek admission to the College each year and the 1,200 on roll today is the maximum that can be accommodated without an all round expansion of the institution. The problems relating to improvement and expansion are under consideration.

In its final development the activities will not only cover music, dancing, weaving, lace-work, pottery, coir work, rattan work, brass work, dying, leather work, and textile printing but also commencial art, industrial art, window display, interior decoration, stage decor, costume designing and allied subjects so that all aspects of art relating to recreation, craftsmanship and the demands of industry and commerce would be met. Such a course of development will have to be on a planned long-term basis and will demand as much investment in staff and staff training as in accommodation and equipment.

Museums, Archives, and Archæology

ASSOCIATED with education and under the Ministry of Education are three other fields which are of importance in a country like Ceylon. They are the Museums, Archives and Archaeology.

COLOMBO MUSEUM

The policy of the Department of National Museums is to preserve for posterity the cultural heritage of Ceylon, its ancient arts and crafts, its dance forms and symbols, its customs and beliefs, and studies of its natural history. During recent times, the objectives of the department have broadened to embrace some research in the fields of geology and prehistory, Ethnology and Anthropology, Natural History and anicient literature and Palaeontology. The department's policy is to seek and publish new knowledge in these fields, promote interest and scholarship in the ancient culture and the natural history of Ceylon by methodical exhibition of its collections, public lectures and radio talks, and by providing Library facilities to scholars. It further seeks in co-operation with the Education Department to provide an educational service to Ceylon schools in the subjects of history, archaeology, natural history, &c., by arranging for a programme of school lectures and providing Guide Lecturers to show the children round the various galleries of the Colombo Museum. The officers of the department also co-operate with the Department of Rural Development by addressing the Rural Development Centres and by placing the results of their researches in the Ethnology of backward classes at the disposal of that department.

The Colombo Museum which was established in 1877, stands on a 7-acre block of land. The original building consisted of the present front block together with the Taxidermist's rooms and offices at the back. Extensions were made in 1909 by the addition of an east wing and a west wing was added in 1928 to ease the congestion of exhibits and Library books.

During the subsequent years the inadequacy of accommodation began to be increasingly felt as the collections increased and the Museum Library was added to year by year. However, during World War II due to the difficulty of obtaining the necessary building materials no extensions could be effected, although a sum of Rs. 300,000 was earmarked for the purpose.

In 1945, the subject of extensions was taken up again, and in 1948 the Public Works Department prepared the necessary plans and estimated the cost at Rs. 2,000,000. Although the Annual Estimates from some years thereafter continued to carry provision for this work a start could not be made for various reasons.

It is now proposed to extend a part of the North Wing of the Colombo Museum in two stages, distributed over a period of 4 years, to provide for additional Library space, exhibition galleries and the necessary store rooms for the reserve collections. The completion of this project will enable the Department of National Museums to provide the public with a more comprehensive and up to date exhibition of the Museum collections and better facilities for study to the students of Ceylon's culture and Natural History.

Investment in this project during the six-year period will be Rs. 1,075,000.

GOVERNMENT ARCHIVES, CONSERVATION AND RESEARCH

The Ceylon archives have been subjected to many vicissitudes in the course of which they have sustained grievous losses. But despite all this damage they still form a massive group unequalled in bulk, antiquity or historical value to those of most Asian countries and surpassing even the collections of India and Indonesia.

At the present time when the countries of Asia have begun to search their past records, in a new spirit, in order to revise the hasty judgments of the last century, correct misconceptions and do justice to their history and cultures, Ceylon could be in the forefront of this revaluation as her archives are organised and well preserved.

In preserving these records which date back to the earlier half of the seventeenth century the archivist has to take a very long period view. His primary tasks are therefore to cause these records to be suitably housed so

as to ensure their physical protection against every type of destructive agency; and to make them accessible to readers by means of adequate indexes of reference.

A modern type of repository should therefore be built containing the latest equipment for the preservation (and study) of Archives. In outward appearance its dignified architectural features should win public approval as providing a fitting home in which to safeguard the written memorials of the nation's life and history. The ground site should be spacious; providing vacant space not only for future expansion but also for an isolation belt all round the building so that a wide gap separates it from the nearest houses and offices and other sources of potential danger from fire or similar accidents.

The structure itself should be designed to suit its inner equipment demands, which are the more essential part, and from thence outwards. The naked steel framework of the book-stacks should be riveted and raised up first, as in the case of the New Bodleian and other depositories. The internal fittings and equipment will also be set in position at this stage: A large part of this standardised metal-work will have to be imported from abroad in ready-made sections. The total cost of this inner kernel is estimated at roughly half a million rupees.

In designing the plan of the building the archivist must take account of all the varied types of work carried out on the records from the moment they reach the accessions room, till they are finally ranged upon the shelves in readiness to be brought out for use in the search-rooms. The photo-copying and other technical sections, the administrative block and public rooms would be so grouped and arranged as to promote maximum efficiency in co-ordinating the work of the different branches. Thus a compact and functional structure would be erected which would be adapted to suit archival needs. The storage area in which the records are filed away would have to be air-conditioned, as a safeguard against mildew, damp and other climatic risks prevailing in the low country. The cost of the outer structure, including floors, staircases, walls and subsidiary equipment is estimated to cost one and a quarter million rupees.

Some minor settlement might also be made over the whole six year period, for making the contents of these archives more easily available. While it is the function of the archivist to preserve his records, marshall them in classified order and prepare catalogues and inventories so that desired documents can be readily traced and produced, it is no part of his duties to attempt detailed editorial studies and furnish calendars, summaries and translations for the general reader. And yet, if the archives

are to be fully exploited, these important tasks must be performed. In other countries the cost of this kind of editorial work is met from private bequests and subscriptions, and carried out by paid scholars and editors not on the archival staff. It is, however, desirable that Government should give a lead in order to focus attention on the immense value of its archives as source material for the nation's history.

Rs. 1,700,000 will be invested during the six-year period for these purposes.

ARCHAEOLOGICAL DEVELOPMENT

It is common knowledge that Ceylon has been the seat of a highly developed civilisation for a period of over two millenia. Various races and religions have, at one time or another, played a part in its eventful history, and monuments, bearing witness to the past achievements of the people of this island, are found throughout its length and breadth. The interest of these monuments is not purely local. Being the products of widely different cultures, the ancient monuments of Ceylon are of interest to students of art, history and civilisation throughout the world.

The districts which saw the efflorescence of the ancient Buddhist culture of the Sinhalese became gradually depopulated from the 13th century, onwards, and some of its greatest monuments at the old Capitals of Anuradhapura and Polonnaruwa were swallowed by the jungle tide and remained unnoticed and uncared for during a period of nearly seven centuries. These, however, began to attract the attention of British administrators in the latter part of the nineteenth century, and in accordance with the increasing interest then taken in studying the history of the human race, a separate department was created in 1891 "to dig and discover, to classify, reproduce and describe, to copy and decipher and to cherish and conserve" the relics of the past.

The Archæological Department, thus constituted, has succeeded in reclaiming from the jungle hundreds of ancient monuments at Anuradhapura, Polonnaruwa, Sigiri, Mihintale and various other sites in all the provinces of the Island.

The revival of Buddhism had led to many of the ancient shrines being restored once again as places of worship. Those engaged in such activities have paid little or no attention to preserving the artistic and archæological characteristics of the ruined shrines which they, with the limited funds at their disposal, were bringing back to a state fit for religious devotion. In order to minimise the damage thus done to objects of art, legal provision has been made in the Antiquities Ordinance of 1940, to "protect"

ancient monuments which are privately owned, enabling the Archæological Department to control and regulate the restoration of ancient monuments by private organisations. Among the numerous shrines thus "protected" under the Antiquities Ordinance are the Atamasthana at Anuradhapura. This action has resulted in the re-building of the frontispieces of the great Ruvanvali Dagaba, in accordance with the ancient design, and enabled the Archæological Department to preserve the antique objects of unique interest found in the course of dismantling the southern and eastern frontispieces.

The "protection" of shrines in private ownership also empowers the Archæological Commissioner to spend moneys voted for the department to maintain and conserve such of these as are in danger of damage or destruction. Among the monuments which owe their continued existence to the intervention of the Archæological Department is the Ambekka Devale in the Kandy District, containing exquisite specimens of Kandyan wood-carving. The shrine of the early British period at Telvatta has also been repaired and the paintings on its walls have thus been preserved by the Department.

Since 1947, the Archæological Department has had more funds at its disposal than during any earlier period; this has enabled it to extend its activities into new and widening spheres. Among the outstanding achievements of the department, the following deserve particular mention; the conservation of the baths and other remains in the Royal pleasure garden at Anuradhapura and the Kuttam Pokuna at the same place; the restoration of the flights of steps and other remains at Mihintale; the excavation and conservation of the Circular shrines at Madirigiri in the Tamankaduwa District and Tiriyay in the Trincomalee District; the conservation of the remains of Kassapa's palace on the summit of the rock at Sigiri and the excavation and conservation of the remains of the pleasure garden and the restoration of about half a mile of the moat at the same site; the excavation and conservation of the remains in the Alahana Pirivena at Polonnaruwa and the work at Sutighara Cetiya marking the site of the birth-place of Parakramabahu the Great at Dedigama. Roads have also been built providing easy access to ancient sites.

It is not only the Buddhist and Hindu monuments at the sites of earlier date that have received the attention of the Archæological Department. The Dutch Forts and Churches at Jaffna and Kalpitiya and remains of Portuguese churches at various places in the Jaffna District have been repaired and conserved at considerable expense.

The work so far carried out has earned for it the encomiums of discerning critics both at home and abroad; many a distinguished visitor has commented favourably on the manner in which Ceylon maintains her ancient monuments. Coming to material considerations, this work indirectly benefits revenue by attracting local visitors and tourists from abroad to ancient sites, most of which also periodically draw large numbers of pilgrims.

The present programme provides for the continuation of this work. Among the major works envisaged, the conservation of the Rankot Vehera at Polonnaruwa and the restoration of the Mahasaya at Mihintale call for special mention. The former is the only Buddhist monument of importance yet remaining without being adequately conserved at the mediaeval City of Polonnaruwa. Built by Nissanka Malla towards the close of the twelfth century, this colossal dagaba was named Ruvanveli, no doubt after the famous shrine founded by the heroic Dutthagamani at Anuradhapura in the second century B.C. The Rankot Dagaba represents the fullest development of stupa architecture in Ceylon, and is preserved with its spire almost intact. The frontispieces and the chapels at its base are of unusual interest for the student of ancient Sinhalese Architecture. The conservation of this monument is estimated to cost Rs. 1,158,000.

The function of the archæologist is basically to preserve ancient monuments in the condition in which he found them, without making any attempt to restore or modernise them. The great majority of the ancient monuments in Ceylon, however, belong to Buddhism. The desire of the faithful to see the derelict shrines of their faith restored to a semblance of what they looked like originally is perfectly understandable and deserves sympathy. A departure from the policy hitherto followed by the department has therefore been made in undertaking the restoration of the Mahasaya at Mihintale, which has been "protected" under the provisions of the Antiquities Ordinance. In the restoration of this stupa which dominates the hill of Mihintale—the cradle of Buddhism in Ceylon—it is proposed to utilise the results of the department's research work into the architecture of stupas in ancient Ceylon, and to give it the form which it had in the tenth century. This work of restoration, estimated to cost Rs. 1,347,000 and to be carried out by the department, will be a model for others to follow in the restoration of similar shrines elsewhere.

In the works proposed under this Programme particular attention will be paid to the conservation or restoration of privately owned monuments which are not fittingly maintained, due to a lack of funds. The spire of the

Northern (Abhayagiri) Dagaba at Anuradhapura and the shrine of the Kandyan period at Dorabavila in the Kurunegala District are two shrines of widely differing dates proposed to be dealt with under this plan.

The remains of ancient pictorial art constitute one of the treasured national possessions of the people of this Island. The Department has already given much thought, and made great efforts, to ensure their preservation by counteracting the forces of Nature which are constantly working towards their deterioration or complete destruction. A chemist who has been specially trained to treat ancient frescoes has been at work on the paintings at Sigiri and Polonnaruwa. There are also specimens of frescoes, though of a later date, at places like Degaldoruwa and Vagirigala which are not under the direct care of the department. It is proposed, under this Programme, to extend the work of the Archæological chemist to include these works of art as well as sculptures which are exposed to the elements.

The total investment on Archæological work during the six years is Rs. 3,597,000.

CHAPTER 22
HOUSING

THE housing shortage has attracted considerable public attention in recent years. A Housing Sub-Committee was appointed in 1952 " to examine and report upon the supply and output of dwelling houses in rural and urban areas with special reference to financing, design, supply of materials, land, construction and variations in the existing law." The Committee was of opinion that, apart from making good the backlog in housing, 5,573 new houses in urban areas and 16,993 new houses in rural areas would be the annual requirement to prevent the housing problem from getting worse. Thereafter, a further 104,346 houses would be required to clear the backlog in urban areas and 164,886 in rural areas. They suggested the establishment of a National Housing Corporation and other steps designed to attack the housing problem through the medium of Co-operative Societies and local authorities. Until late 1953, housing was a subject under the Ministry of Local Government and efforts were made through a Housing Loans Board to encourage private individuals to build houses. Such efforts were obviously insufficient to meet the problem and in October, 1953, Housing was given Ministerial status in its own right. Since then estimates have been made to spend Rs. 90 million over the six-year period on building houses either direct or through loans to individuals and building societies. The National Housing Act, No. 37 of 1954, gives the necessary legal powers and provides the administrative machinery required. In his White Paper on Housing Policy published in 1954 the Minister has elaborated the policy underlying the National Housing Act.

In the paragraphs that follow an attempt will be made to assess roughly the magnitude of the problem. Thereafter, it would be possible to examine the extent to which the Six-Year Programme would be helpful in making good the housing shortage.

The Magnitude of the Problem

THERE are two aspects of the housing problem. The first is historical. In the recent past the population of the country has been expanding at an average annual rate of about 2.7 per cent. Meanwhile, during and immediately after the war, building activity has naturally not been able to cope with the increase in population due to a host of reasons including scarcity

and high cost of building materials and the diversion of capital into more profitable avenues. There was also a progressive urbanisation of the population. The combined effect of all these factors was to accumulate each year a sizeable backlog of houses. It is this backlog which forms the first aspect of the housing problem.

The second aspect too is connected with the high rate of expansion in the population. Given a certain backlog in housing, it is essential to provide the future increase in population with suitable houses if the backlog is not to be allowed to increase. This, the perennial requirement of houses for the future annual increment in population, forms the second part of the problem.

In his memorandum to the Housing Sub-Committee, the then Deputy Governor of the Central Bank made an estimate of the backlog in housing as at the middle of 1952. The estimate was made on the assumptions that an average sized family of 4.84 persons should have a separate unit of housing accommodation and that houses occupied by lower income groups in urban areas are those with a monthly rental value of Rs. 20 or less.

In making an estimate of the present position it is necessary to make certain assumptions. The Housing Sub-Committee took 4.84 persons as the satisfactory housing unit based on the size of the average household at the 1946 census. Since then there has been a census in 1953 but the size of the average household is not yet known. According to the *Survey of Ceylon's Consumer Finances* conducted by the Central Bank in 1953, the average size of the household was 5.33 persons. An increase of .49 persons per household between 1946 and 1953 could have taken place due to two reasons. The size of the family (housing) unit may have increased. New house-building may not have kept pace with the increase in population. In fact, in the context of a rapidly rising population it is likely that the increase in the size of the household is due to the combined effect of both reasons. We can make the assumption that in view of the likely increase in the size of the family the present satisfactory housing unit is 5.1 persons per household of average size. The survey also revealed that the median floor-area of a household was only 260 square feet, which works out to less than 50 square feet per head of population. This fact reveals considerable congestion when the entire population is housed at 5.33 persons per household. The medium number of rooms per household was 2.4, which works out to 108.3 square feet per room. This is lower than the 120 square feet per living room laid down in the schedule to the Housing and

Town Improvement Ordinance. It is also lower than the minimum requirements in some of the more advanced countries like the United Kingdom and New Zealand where the minimum requirement varies between 110 to 150 square feet per room ; but, it is higher than in some of the less developed countries like India and Thailand where the minimum requirement varies between 80 to 100 square feet per room. Taking the average area of the household and living rooms and the average number of persons per household, the population appears to have been living in considerably congested conditions in 1953.

In quantitative terms, taking 5.1 as a satisfactory housing unit, the number of units required to house the population, estimated to have been 8,130,000, in 1953, was 1,594,117. The actual number of households, estimated on the basis of the survey was, 1,533,962. On this basis the backlog at the time of the survey, apart from congestion in existing houses, can be estimated to have been 60,155 houses.

The present programme of investment begins with the financial year 1954-55. Hence to arrive at the backlog it is necessary to estimate the addition to the backlog in 1953-54. On the basis of 5.1 persons per housing unit and a population increase of roughly 200,000 the requirement of houses in 1953-54 would have been 39,215. Out of this a certain number would have been built within the year. The actual number is not known. However, it is known that the number of occupied houses at the 1946 census was 1,374,675. At the time of the Central Bank's survey in 1953 the number was 1,533,962. The increase over the seven year period in the entire economy was 159,287, i.e., an average annual rate of 22,741. Assuming the same annual rate for 1953-54, the addition to the backlog works out to 16,474. The total backlog at the beginning of 1954-55 is, therefore, 76,629 houses.

The perennial housing requirement is a more difficult estimate to make because it requires assumptions regarding the future trend of population and the likely behaviour of the average size of the housing unit. Taking the rate of increase in the recent past as our basis, we can assume population to increase at an annual average rate of about 200,000 persons. With such a rapid increase a change in the size of the family (housing) unit is very likely, but there is no basis on which the change can be estimated. Since the increase in population is comparatively rapid the change is likely to be towards an increase in the average size of the family unit. On the basis of 5.1 persons per unit the annual requirement of houses works out to 39,215. If, as is likely, the size of the housing unit increases, the requirement would be less. About 38,000 new houses per year would, therefore, be the likely annual requirement.

To sum up, the housing problem resolves itself into the task of building 38,000 houses annually to meet perennial requirements and 76,629 houses over a period of years to meet the existing backlog. This latter is the accumulated result of years of inadequate house building. It is impracticable to meet this backlog over a very short period of years. It has essentially to be a long-term task, ranging over a period of, say, 24 years. The number of houses that should be built annually to make good this backlog in 24 years would be 3,193, bringing the total annual requirement to meet both perennial and accumulated needs to 41,193 houses. Of this, according to experience in the recent past, existing building activity, both Government and private, produces 22,741 houses. This leaves 18,452 houses as the additional annual requirement of houses. A further break-up of this figure into rural and urban houses would clarify the requirements. At the 1953 census the urban population accounted for 15.2 per cent. of the population. Assuming that in the six year period the relative weightage of urban population will remain the same, the annual requirement would be 2,805 houses in the urban areas and 15,647 houses in the rural areas. That is the magnitude of the task facing the Ceylon economy.

The Investment Programme and Housing Policy

IN the six-year period Government proposes to spend Rs. 90 million on housing. This expenditure, by itself, cannot go very far in meeting the additional annual requirements ; for, even at a low average of Rs. 3,500 per house, only 26,000 houses will be built over the entire six-year period. However, expenditure under the plan is only part of a more vigorous housing policy. The basic principles underlying the policy have been written into the National Housing Act, under which authority a separate National Housing Department has been established.

The Department of National Housing will make available land and/or capital to prospective home owners. The medium of the National Housing Act will be used to acquire private lands, particularly in and around congested areas, for those who wish to build but cannot do so for want of land. As far as Colombo is concerned, the broad plan is, first to find immediate relief by creating large housing estates in its suburbs : in Enderamulla (8 miles from the Colombo Fort), Kelaniya (7 miles from the Colombo Fort), Nawala, Welikada and Battaramulla (5 to 8 miles from the Colombo Fort), and Ratmalana (9 miles from the Colombo Fort). Lands are being acquired in these areas and suitably laid out as housing

estates with water service, electricity, and where possible, even drainage. Building sites will either be sold outright to individual applicants or to societies or arrangements will be made for building societies to enter into occupation of rent-purchase houses after they have paid a portion of the value of the land. On all these sites suitable blocks are developed by Government by direct construction to serve as models for others. 5,000 houses are expected to be built in these areas in the first two years.

As far as Colombo itself is concerned, the Government will also undertake some direct building activity. But most of the Government accommodation within the city limits will be in the form of flats which will be let out, in the first instance, on a pure rental basis. There will be basic flats for workers, in different parts of the city, in a scheme costing over Rs. 10 million, and the Bambalapitiya Housing Scheme for persons in the middle-income groups estimated to cost Rs. 7,500,000. A block of single rooms with restaurant facilities has also been planned on a site near Cotta Road Railway Station. There will also be over 500 emergency houses for persons who are living in congested areas in the city, in order to enable the owners of these areas to demolish unhealthy structures and rebuild on those sites; these emergency houses will serve as clearing houses for the residents of such areas until new houses are constructed for them on the old sites. All this activity is in addition to private constructions now being carried on in and round the City with loans from the National Housing Department.

The needs of other towns are not being neglected. Kandy, for instance, will have housing schemes estimated to cost over Rs. 5 million, including separate schemes for Government Servants of all grades and private citizens. Similarly, bazaar areas upcountry like Nawalapitiya, Hatton, Talawakelle, Norwood, Maskeliya, &c., will be provided with outlets for their present congestion. Rent-purchase schemes have been devised for other outstation towns. The rural population will also be catered to according to their needs. A plan is being prepared in consultation with the Land Commissioner, for the utilization of Crown land in some of the principal towns of the Island, like Trincomalee, Matale and Hambantota, where Crown land is still available, for launching housing schemes.

Most of the schemes referred to above, including probable loan liabilities, have already been planned and estimated for execution within the first three years of the period. The expenditure during this period will bring an appreciable return to the National Housing Fund by sale of land and buildings and instalment-payments for various kinds of services and rents. The income in so short a period, which depends on many outside factors, is not easy to estimate, though a mathematical calculation

would lead us to expect a return in the third and fourth year of a total of five million rupees, the amount gradually increasing as the years go by. The financial provision, therefore, for the latter half of the six year period is, subject to later review, left at a safe level of Government financial assistance for housing in any normal year.

The National Housing Act gives the necessary legal powers and provides for the necessary administrative machinery in order to proceed with the attack on the housing problem. The Act defines certain housing objects, including the construction of buildings for residential purposes, the manufacture, importation or supply of materials required for the construction of such buildings, the provision of roads, water, electricity, gas and sewerage, the administration, management or control of buildings and building schemes, the provision of amenities for the inhabitants of any area in which any housing scheme has been carried out including transport and other services, the development of land for the carrying out of any housing object, and the completion, extension, improvement or repair of buildings for residential purposes.

A National Housing Fund has been established and a post of Commissioner for National Housing, functioning under the general and special directions of the Minister of Housing, has been created. The Commissioner administers the Act; the Fund is responsible for the execution of housing objects. Provision has also been made for the raising of public loans by the issue of debentures for the purposes of the National Housing Fund. This measure has been possible because the plan is to ensure the repayment of capital monies expended on housing, with interest thereon, over periods of years. All loans granted to individuals who own land and wish to build thereon by offering such land as security against the repayment of a loan will come from the monies raised by way of these public loans.

Apart from granting loans the Commissioner for National Housing will build houses in accordance with the Ministry type plans for persons in the lowest, lower-middle and middle income groups, i.e., the category of persons who would not normally be able to undergo the expense of finding private contractors and architects to do their own building for them. These persons will pay a proportion of the value of the land as an initial deposit to secure against any possible default and thereafter move into one of these houses, when constructed, as owners on a rent-purchase basis. They will repay the entire capital spent on land, house construction and provision of amenities, with appropriate interest thereon, over

periods of twenty to twenty-five years in equated payments; the appropriate interest will be based on the cost of the house and the income of the individual. Apart from this medium, acquired land will also be provided to people who can pay its entire value and build on it with their own capital, as well as to people who can pay its entire value and wish to build with a loan from the National Housing Fund. In order to give persons in the middle and lower income groups an opportunity of living in a house of their own design, arrangements will also be made for persons who band themselves into Building Societies (and wherever possible even to individuals) to deposit a proportion of the value of the land earmarked for them into the National Housing Fund, after which monies will be provided for them to build suitable houses of their own design and specifications after approval by the Commissioner for National Housing. Such persons will pay a small monthly rental on the land until the house is constructed. Once construction is complete they will commence repaying, on a rent-purchase basis, the entire amount outstanding to the Department.

The Department of National Housing and the Town and Country Planning Department will provide type plans and specifications for low-cost building. To this end the Low-cost Housing Centre situated at Jawatte Road has already devised methods of reducing the cost of construction of such houses by the use of stabilised earth walls and are now investigating the possibilities of using other cheap indigenous materials for doors and windows, other timber work and roofing.

In the majority of the housing schemes being constructed through the medium of the Department of National Housing all the materials used will be indigenous; this policy, in addition to reducing imports will provide a market for and thus stimulate local production of building materials. The question of placing large orders on local Co-operative Producers' Societies and stimulating the production of local bricks is also being considered. The main purposes for which imported materials will be used are in respect of the provision of water, electricity and drainage facilities; the production of such materials locally will, however, be further investigated during the six-year period.

The National Housing Act also provides for the development of land which is lying bare at the moment due to the high costs of providing roads, water, electricity and other facilities. Many people have urban land lying idle because they cannot reach agreement as to the apportionment of the costs involved in such development. The Act provides for the

Commissioner to secure the agreement of the majority of the owners involved and to develop such land, apportioning the costs of development amongst the owners concerned, including any dissentient minority. The costs could then be recovered over a period of years, on the same basis as the rent-purchase method.

The housing policy of the Government is designed to enable every housing unit to own the house it lives in. The expenditure by the Government is only part of a policy designed to harness both public and private resources available for housing construction in order to achieve that goal. The success of the policy depends on the extent to which the private individuals and building societies utilise the facilities provided by Government. It is not possible for Government to undertake the entire task of providing the total housing requirements of the country. Housing it just one problem amongst the multiplicity of economic problems facing the country. The overall investment programme is an attempt to solve all such problems in their proper order of priority. The solution, at best, would only be partial and would pave the way to further activity in the future. In housing, as in other problems, the programme embodies an effort to better the existing situation in the context of the general economic development of Ceylon.

CHAPTER 23

HEALTH

Introduction

THE importance of the provision of efficient health services in any programme for the economic development of a country cannot be over emphasised. There has been no lack of appreciation of this on the part of the Government which has adopted all possible measures in keeping with the resources of the country to raise the general standard of health of the population. With the introduction of the Donoughmore Constitution in 1931, and later with the granting of Independence, health services expanded rapidly as will be seen from the figures given below of the expenditure on health services from 1900-01 to 1953-54.

Expenditure on Health Services

Financial Year	*Population as at 1st July* ('000)	*Expenditure on Health Services **	
		Total (Rs.)	*Per Capita (Rs.)*
1900–01	3,583	1,301,866	0·36
1910–11	4,121	3,157,548	0·77
1920–21	4,522	5,388,791	1·19
1930–31	5,326	9,703,775	1·82
1940–41	6,044	13,430,141	2·22
1941–42	6,044	14,325,466	2·37
1942–43	6,161	15,661,820	2·54
1943–44	6,308	18,195,746	2·88
1944–45	6,516	21,621,383	3·32
1945–46	6,719	28,663,401	4·27
1946–47	6,903	37,201,294	5·39
1947–48	7,109	51,659,938	7·27
1948–49	7,321	57,041,147	7·79
1949–50	7,544	62,364,132	8·27
1950–51	7,742	67,639,299	8·74
1951–52	7,940	82,489,943	10·39
1952–53	8,155	87,047,048	10·67
1953–54	8,385	90,139,535	10·75

Whereas the per capita expenditure had risen from 36 cents to Rs. 1.82 from 1900 to 1931 it had increased to Rs. 4.27 in 1945-46 and to Rs. 10.75 in 1953-54. This large increase in the annual expenditure reflects the extent of the increased services rendered to the community in the field of health.

* Excludes expenditure from Loan Funds, P. W. D. Votes and Treasury Votes.

The results of these efforts during the last few years could be seen from the following figures of vital statistics :

Mortality Rates

	1946	1953	1954*
Mortality per thousand of the population	20·3	10·9	10·4
Maternal mortality per thousand live births	15·5	4·9	4·6
Infant mortality per thousand live births	141·0	71·0	72·0
Life expectancy at birth (years)	43·0	58·8	59·0

It is interesting to note that while the life expectancy at birth increased from 35 in 1920 to 44 in 1946, i.e. an increase of 9 years in a 26 year period, an increase of 15 years has been effected within the last 8 years which has been commented on by the WHO as "an unparallelled achievement in world demography".

Undoubtedly the most impressive achievement in the field of public health and one which has evoked the highest international admiration is the almost complete eradication of malaria in Ceylon. Professor D. Mc Donald, Director of the Ross Institute and Professor of Tropical Hygiene of the London University, made the following comment :

> "It amazes me that people in Ceylon had not realised the magnitude of what they have achieved in bringing malaria under control. Ceylon's Malaria Control Campaign is the best in the East. Any country interested in malaria control should study Ceylon's progress in this direction".

While these are achievements of which this Government can well be proud, it must be mentioned that the standards which are envisaged for the various health services of the country have not yet been reached. Much still remains to be done which must necessarily have to be spread over a number of years. The proposals for the six years commencing 1954-55 are outlined in the succeeding paragraphs.

The investment programme in this sector totals Rs. 114 million. A number of desirable projects have, however, had to be excluded from the programme. These additional projects are noted for implementation if financial

* Figures given are provisional.

resources permit of an expansion of the present programme. The total sum of approximately Rs. 114 million is distributed between the principal categories under which the proposals may be grouped as follows :

(*a*) Hospitals including peripheral units	..	Rs. 104 million
(*b*) Public health	..	Rs. 3 million
(*c*) Special campaigns : (i) T. B. ..	..	Rs. 3 million
(ii) Leprosy	..	Rs. 1 million
(*d*) Research	..	Rs. 1 million
(*e*) Indigenous medicine ..	..	Rs. 2 million

The programme is very largely one of additions and improvements to, and construction of hospitals and dispensaries, the cost of which works out to nearly 88 per cent. (which is very nearly the proportion recommended by the World Bank Mission) of the total cost of the investment proposals. This construction programme in respect of hospitals and dispensaries is largely one of consolidation rather than one of expansion The general context of the health programme is outlined in the sectors that follow.

Historical Background

WESTERN medicine was probably first introduced into Ceylon by the Portuguese. The Dutch too established civil hospitals in various parts of the Island, among which was the Leper Asylum in Hendala built in 1708 which exists to this day. But it was in the early British period that anything like an organized medical service was formed. To deal with a rather severe outbreak of smallpox in 1798 an organization was set up by the British which developed into a civil medical establishment from which evolved the Medical Department of today.

Medical administration in the early years was mainly devoted to the control and prevention of outbreaks of epidemics, and problems connected with estate health. Smallpox which was endemic in Ceylon at the time the Portuguese arrived was very nearly being stamped out with the introduction of vaccination in 1802. But with the influx of immigrant labour in the early nineteenth century for the plantations—coffee and later tea—epidemics began again to occur from time to time not only of smallpox but of cholera as well. To deal with these a Contagious Diseases Ordinance was promulgated in 1886, which was later replaced by the Quarantine and Prevention of Diseases Ordinance of 1897, and two quarantine camps were established, one at Tattaparai and the other at Mandapam. These measures effectively prevented cholera and smallpox from becoming endemic in Ceylon.

The Indian Act No. XIV of 1839 prohibited immigration from India generally, but this prohibition however was not enforced against Ceylon.

The position was legalized in 1847 by an Act which permitted immigration to Ceylon provided India was satisfied that Ceylon had made adequate provision for the protection of such immigrants. A duty was accordingly cast on the Ceylon Government to ensure that the medical care of immigrant labour received proper attention. In view of the principle accepted in Ceylon of the employer's liability for the illness of his servants—a principle which was subsequently given legal recognition in Section 27 of Ordinance No. 11 of 1865—Estates paid for the medical care of Indian immigrant labourers. They did so however under protest, urging, that the application of this principle to them alone while the medical wants of labourers under other employers were provided free, amounted to discrimination. After much discussion Government reaffirmed this policy on the ground that estates were situated in remote areas away from the centres of population, and the first Medical Aid Ordinance was enacted in 1872 which provided for the assessment of estates for the purpose of raising funds needed for medical aid.

Owing to certain difficulties connected with the administration of this Ordinance, it was replaced in 1880 by an Ordinance which discontinued acreage assessment and provided for the levying of export duties on plantation crops for the purpose of raising the necessary medical aid funds. This was later replaced by a new Medical Wants Ordinance No. 29 of 1912 which is still in operation. It abolished the Medical Wants Fund, provided for the credit to revenue of the export duties hitherto levied, and required that a book account of receipts and payments on account of medical aid rendered to Indian estate labourers be maintained, the account being debited to the estate on a pro rata basis in respect of medical services rendered to Indian labourers computed on the number of days spent by them in Government hospitals and the number of visits paid by them to Government dispensaries.

Not until 1912 did public health in its broad aspects receive the attention of the Medical Department. In that year a Commission was appointed to report on the establishment of a Sanitation Department, and in 1913 a Sanitation Branch of the Medical Department was formed under the charge of a Sanitation Commissioner and staffed with about half a dozen Sanitation Officers later called Medical Officers of Health. Owing to the outbreak of World War I and the limited personnel available, nothing more than a very elementary type of public health service was possible. This service addressed itself to the problems of sanitation and the control of communicable diseases. An important development however of this early public health service was the inauguration in 1916 of a Hookworm Campaign with the co-operation of the Rockefeller Foundation. This Campaign, despite considerable opposition in its early stages, was a great success. It

demonstrated effectively the desirable results of public health work and the need to incorporate in the public health programme the then new aspect of personal hygiene. This led to the inauguration in 1926, on an experimental basis, of the Health Unit at Kalutara and subsequently of 8 other Health Units located in the different provinces of the Island. Each Health Unit had a defined area of operation within which it carried out intensive health activities consisting of health surveys, health education, tabulation and study of vital statistics, maternity and child health work, school health work, sanitation and control of communicable diseases.

Vital Statistics

IN no field of human activity are statistics more useful than in the planning of the health services of the country. It is, of course, of the utmost importance that the statistics should be sound and reliable. It is relevant, therefore, to refer here to the comment made by Mr. F. L. Hoppman, an eminent American statistician that the vital statistics of Ceylon compare favourably with those of the West and are easily the best in the East. The table at page 383 indicates the comparative vital statistics for the years 1924 to 1954.

BIRTHS

The number of births registered in 1953 is the highest on record, and is over 45,000 more than the annual average for the decade 1943 to 1952. Since then, the birth rate shows a slight change of pattern, and the figure of 39.5 per thousand of the population in 1952 has come down to 39.4 in 1953, while the provisional birth rate for 1954 is 36.2, the lowest for the period 1948 to 1954. Ceylon's birth rate is, however, high compared with that of a number of other countries.

DEATHS

The number of deaths registered in 1953 showed a drop of nearly 4,300 from that of 1952, while it was more than 22,000 below the annual average for the decade 1943 to 1952. The death rate of 10.9 per thousands of the population for 1953 (the provisional rate for 1954 is 10.4) is the lowest ever recorded. Prior to 1947, the Island's death rate was always, with very few exceptions, above 20 per thousand of the population. In 1947 it dropped to 14.3 and has been steadily declining thereafter. This remarkable drop in the death rate of the Island's population has been referred to in the monthly bulletin published by the Division of International Health of the Public Health Services of the United States as " an event without precedent in the annals of World Demography and worthy of the very special attention of all Public Health Workers ".

Despite the steady drop in Ceylon's death rate, it is still higher than the rate in some advanced countries. At the pace at which the Health Services are now being developed, there can be little doubt, however, that further rapid reductions in the death rate will follow.

(I) INFANT MORTALITY

The number of deaths of children under one year registered in 1953 showed a decrease of 7 per cent. from that for the year 1952. The infant mortality rate, which was 141 per thousand live births in 1946, dropped steeply to 101 in 1947, and, since then, has been gradually declining. The figure for 1952 was 78, and for 1953, 71. The infant mortality rate being the most sensitive index to the Health Services of a country, these figures provide eloquent testimony to the vast improvements that have been effected in recent years in the field of public health. There is, however, much more to be done in this field.

(II) MATERNAL DEATHS

Maternal deaths from causes connected with pregnancy and child-birth have also registered a steady decline. The number of deaths for 1953 was 260 below that for 1952, and 1,131 below the annual average for the decade 1943 to 1952. The maternal death rate per thousand live births which stood at 16.5 in 1945 has declined to 5.8 in 1952, 4.9 in 1953, and 4.6 in 1954. These figures again are indicative of the vast improvements that have been effected in recent years in the field of maternal health.

(III) OTHER CAUSES

This progress has been maintained in regard to the other activities of the Department in the field of public health. The mortality figures of some of the more important diseases prevalent in Ceylon are given below :—

(a) *Malaria*

722 deaths were registered in 1953 as against 1,049 in 1952, and an annual average of 4,836 for the period 1943 to 1952.

Malaria Mortality

Year	*Deaths Registered from Malaria*	*Rate per Million of Population*
1949	2,402	328
1950	1,903	252
1951	1,599	206
1952	1,049	132
1953	722	89

(b) *Ankylostomiasis*

679 deaths were registered in 1953 as against 815 in 1952. The death rate has dropped from 103 per million in 1952 to 53 in 1954. It may be noted that prior to 1936 the death rate from this cause had generally been over 300 per million.

(c) *Tuberculosis*

The rapid decline in the death rate after 1951 may be noted. The death rate per million of the population prior to 1932 was over 600. Between 1932 and 1946 the average death rate was 540.

Tuberculosis Mortality

Year	*Deaths Registered from Tuberculosis*	*Rate per Million of Population*
1949	3,866	528
1950	3,694	490
1951	3,589	463
1952	2,808	354
1953	2,202	270

(d) *Typhoid*

There were 402 deaths in 1953 as against 547 in 1952, and the death rate in 1953 was 49 per million as against 69 in 1952. It may be mentioned that in 1944 the death rate was 249.

(e) *Dysentery*

Between 1925 and 1931 the death rate varied between 600 and 784. From 1931 onwards it declined rapidly to 97 in 1949, except that in 1935, the year of the Malaria epidemic it went up to 1,103.

Dysentery Mortality

Year	*Deaths Registered from Dysentery*	*Rate per Million of Population*
1949	708	97
1950	823	109
1951	905	117
1952	918	116
1953	688	84

(f) *Gastro-enteritis and Diarrhoea*

In 1945 the death rate per million was 1,652. It dropped to 431 per million in 1953.

Vital Statistics, Ceylon

Year	Estimated Mid-Year Population	Number of Births Registered	Number of Deaths Registered	Birth Rate per 1,000 Population	Death Rate per 1,000 Population	Infant Mortality Rate per 1,000 Live Births	Maternal Mortality Rate per 1,000 Live Births
1924	4,766,000	178,867	122,958	37·5	25·8	186	19·1
1925	4,847,000	193,261	117,543	39·9	24·3	172	18·5
1926	4,928,000	206,888	124,884	42·0	25·3	174	19·0
1927	5,009,000	205,469	113,003	41·0	22·6	160	17·0
1928	5,091,000	213,308	132,334	41·9	26·0	177	19·2
1929	5,172,000	198,005	135,274	38·3	26·1	187	20·4
1930	5,253,000	205,106	133,708	39·0	25·4	175	21·4
1931	5,326,000	199,170	117,452	37·4	22·1	158	20·8
1932	5,389,000	199,370	110,649	37·0	20·5	162	19·2
1933	5,419,000	209,032	114,690	38·6	21·2	157	18·6
1934	5,560,000	206,512	127,069	37·1	22·9	173	20·1
1935	5,608,000	192,755	204,823	34·4	36·5	263	26·8
1936	5,642,000	192,060	123,039	34·0	21·8	166	21·6
1937	5,725,000	216,072	124,210	37·7	21·7	158	19·9
1938	5,826,000	208,389	122,299	35·8	21·0	161	20·1
1939	5,916,000	212,111	128,611	35·9	21·7	166	18·2
1940	5,972,000	212,980	122,738	35·7	20·6	149	16·1
1941	6,044,000	219,864	113,003	36·4	18·7	129	15·3
1942	6,044,000	221,064	112,044	36·6	18·5	120	14·4
1943	6,161,000	248,820	131,061	40·4	21·3	132	13·3
1944	6,308,000	232,827	133,985	36·9	21·2	135	13·7
1945	6,516,000	238,494	142,931	36·6	21·9	140	16·5
1946	6,719,000	256,886	135,937	38·2	20·2	141	15·5
1947	6,903,000	271,191	98,544	39·3	14·3	101	10·6
1948	7,109,000	287,695	93,711	40·5	13·2	92	8·3
1949	7,321,000	291,191	91,889	39·8	12·6	87	6·5
1950	7,544,000	304,635	95,142	40·4	12 6	82	5·6
1951	7,742,000	313,662	100,072	40·5	12·9	82	5·8
1952	7,940,000	313,532	95,298	39·5	12·0	78	5·8
1953	8,155,000	321,217	89,003	39·4	10·9	71	4·9
1954	8,385,000	303,894	86,794	36·2	10·4	72	4·6

Administration : The Re-organization of the Health Services

ON the instruction of Government Dr. J. H. L. Cumpston submitted a report in 1950 on the working of the medical and public health organizations of Ceylon, and recommended certain reforms and improvements. Certain proposals based on these recommendations have already been put into effect, others are in the course of implementation. On the administrative side, a Health Act has been enacted and a reorganization scheme put into operation. The Department was divided into three divisions—the Medical Services, the Public Health Services and the Laboratory Services—each in charge of a Deputy Director of Health functioning under the general supervision and control of the Director. The Island was divided into 15 Health Districts, each of which is in charge of a Superintendent of Health Services. A Health Council was established to advise on health matters. A Hospital Committee was constituted with certain powers and responsibilities for the management of the General Hospital, Colombo. The administration was decentralized and a closer co-ordination of the curative and preventive aspects of the health services was effected particularly at the sub-divisional level.

It is proposed in the six-year period to consolidate these reforms and to complete the scheme of decentralization by extending it to all branches of administration, to expand the powers and responsibilities of the Colombo General Hospital Committee, to constitute, if found possible, such committees for some of the other hospitals, and to establish wherever possible Regional Hospital Boards for the co-ordination of the hospital services in the areas for which such Boards are constituted.

Decentralization of the administration is one of the important recommendations made by Dr. Cumpston. The tremendous expansion of the health services has resulted in a large increase of routine business which it is quite impossible for a headquarters organization to tackle efficiently. The Organization and Methods Division of the Treasury having studied the problem in the Health Department pointed to decentralization as the solution. The services of two experts were obtained under the Technical Assistance Programme to work out the practical details for a programme of administrative re-organization. They both agreed that decentralization should be the principal feature of the reorganization plan.

No scheme of reorganization of the Health Department could achieve results of any value if it does not provide for a closer co-ordination of the preventive and curative functions of the Department. This is sought to be achieved by combining these functions at the divisional level with a Superintendent of Health Services who will be responsible to the Director for the proper supervision of all the health services in his division.

I.—HOSPITAL AND DISPENSARY SERVICES

Over-crowding at hospitals is still a problem of some magnitude. One of the main causes for this is the growing popularity of Western medicine and a greater inclination to resort to hospital treatment. The total number of beds in the hospitals in 1952 was 19,959 distributed among 232 institutions in the ratio of 1.9 beds for every 1,000 of the population. The World Bank Mission in its report recommended an ultimate target of 3.6 beds per 1,000 of the population, and as a short term policy the increase of bed strength by 50 per cent. and the addition of 10,000 beds in 10 years. For this purpose it recommended the investment of a sum of Rs. 90,000,000 on hospital construction and extension together with a recurrent expenditure for maintenance rising from Rs. 2,000,000 to Rs. 20,000,000 per annum. At the end of 1954 the total bed strength in our hospitals was 24,494 distributed among 374 institutions which was an increase of 4,533 beds over the total bed strength at the end of 1951. This increased the ratio of beds in hospitals to population to 2.9 per 1,000 at the end of that year. With the accelerated tempo of construction it is hoped that the annual rate of increase would reach the 2,000 mark within the next 2 years, and that the extra 7,000 to 8,000 beds required for the ultimate target of 3.6 beds per 1,000 of the population could be achieved by the end of the six-year period.

The old policy of attempting to bring medical facilities within the reach of the remotest village by multiplying the number of small institutions such as rural hospitals, central dispensaries and maternity homes and dispersing them widely in the rural areas throughout the country has been abandoned. Such dispersal is not conducive either to efficiency in administration or economy in cost and must necessarily result in inadequate attention to the improvement and development of the larger hospitals. Moreover, with the rapidly improving transport facilities, a factor militating against centralization, is losing its significance in the preparation of a programme for the expansion and improvement of hospital and dispensary services on those lines.

The policy now is to organize the hospital services lying within certain defined regions in such a way that they would form for each region a single organized system consisting of a Provincial Hospital at the centre, surrounded by a number of base and district hospitals, each of which in turn is the centre for a number of Peripheral Units. The functions of hospitals of various sizes are being graded, and the administration of all hospitals lying within the same region is being co-ordinated. The objective is regional self-sufficiency. The constituents of each system function not independently but as parts of one co-ordinated whole. The provincial hospital will be linked to the base hospital and the base hospital to the

district hospital by teams of visiting specialists and efficient ambulance services. A similar functional relationship will exist between the base and district hospitals and the peripheral units surrounding them. Provincial, Base and District Hospitals will be enlarged and improved to standards appropriate to each of them as recommended by the Health Council. This scheme of development visualises eight provincial hospitals with 750 beds each providing treatment for the major specialities of medicine, surgery and midwifery, and 13 other minor specialities ; a number of base hospitals with 300 beds each providing treatment in only the major specialities ; and peripheral units each with a total bed strength of 35, and consisting of a rural hospital, a maternity home, and a dispensary providing the basic medical needs in the rural area. There will be, in addition, the General Hospital, Colombo, and its ancilliary institutions for certain specialities such as Obstetrics, Gynaecology, Paediatrics, Eye diseases, Dental diseases, Cancer and infectious fevers. These special institutions will be developed eventually to provide the most up-to-date treatment. There will also be a number of hospitals—which will be referred to as District hospitals—which it is not proposed to develop to the standard of Base hospitals, but which will nevertheless be improved to have at least 200 beds providing facilities for limited specialist consultation and minor surgery.

The peripheral units, so called because they lie in the periphery of the region, are being strengthened as much as possible to take the full share of the inflow of patients whose treatment does not necessitate their accommodation in the more specialised district, base and provincial hospitals. In addition to being centres from which domiciliary and other field services will be readily available to the public they will also be centres for studying the occurrence of diseases in the community, for taking suitable preventive measures, and for carrying out within their respective areas of operation the executive programmes of the specialised campaigns such as T. B., V. D., &c. These units will also take all the necessary measures to improve environmental sanitation and will co-ordinate the prevention and curative measures in their areas. It is expected that it will be possible to provide for these units the services of the necessary ancilliary personnel such as Public Health Inspectors, Health Visitors, Apothecaries and eventually Nurses.

A modern ward block comprising a 5-storeyed building in the General Hospital where the lack of accommodation is most acute is nearing completion. Since it is not considered desirable from the point of view of administration to increase the present size of the General Hospital and since additional hospital accommodation in and around Colombo is an

urgent necessity, it is proposed to construct two new hospitals, one to the North and one to the South of Colombo. A new Provincial Hospital has been completed at Ratnapura and a new District Hospital to serve as a model hospital of this type has been completed at Kalutara. Various District and Provincial Hospitals are being extended, and equipment and staff improved. The rate of increase of accommodation has also been stepped up by the construction of light construction wards of which 30 have been completed. The pace will be accelerated by the construction of pre-fabricated buildings for which a sum of Rs. 5,000,000 has been provided in the current year's estimates.

The Six-Year Programme provides for—

(*a*) Rs. 17,744,000 for the development of the 8 provincial hospitals at Kandy, Galle, Jaffna, Kurunegala, Anuradhapura, Badulla, Batticaloa, and Ratnapura, in that order of priority.

(*b*) Rs. 33,977,800 for the development of 11 base hospitals and as many as possible of the district hospitals.

(*c*) Rs. 21,485,000 for the development of 55 peripheral units ;

(*d*) Rs. 7,091,000 for the development of the General Hospitals ;

(*e*) Rs. 15,000,000 for the development of the intitutions ancilliary to the General Hospitals.

(*f*) Rs. 6,044,000 for the provision of water supplies for hospitals and peripheral units.

(*g*) Rs. 2,400,000 for the provision of electricity to hospitals and peripheral units.

II—PERSONNEL—DOCTORS, NURSES AND PARA-MEDICAL STAFF

As measured against the population there is an extreme shortage of Doctors, Nurses and other technical personnel. The efficient administration of existing hospitals and the extension of both institutional and field medical services is impossible without an adequate number of Doctors, Nurses, Midwives, and auxilliary personnel. A reference to the table below will give an indication of the increase in the number of institutions and beds during the period 1931 to 1954, along with the pace of increase that was maintained in the matter of the major categories of personnel.

Increase in bed strength as compared with cadre—(selected years)

Number

	Hospitals	*Beds*	*Doctors*	*Apos.*	*Nurses*	*Attendants*
1931	156	9,821	341	418	612	1,414
1946	189	16,784	561	551	1,078	3,851
1950	362	20,998	674	676	1,165	3,940
1953	390	22,740	773	840	1,827	4,565
1954	374	24,294	814	926	1,996	5,139

(*a*) DOCTORS

The number of doctors employed in the Department of Health Services at the end of 1954 was 814. It is estimated that in addition to this, there are about 500 doctors in private practice. About 100 medical graduates pass out of the University each year and most of them, if not all, are absorbed by the Department of Health Services. However, on account of wastage, the smallness of the out-turn of the University and the rapidly increasing needs of the health services, the average net annual increase of doctors in the Department's cadre has been only about 50. To achieve the desirable target of 4,000 doctors in 20 years the present rate of output will have to be practically doubled. Even to meet its present obligations satisfactorily and conveniently, the Department requires an immediate increase of about 50 per cent. in its establishment of Medical Officers.

While the University is endeavouring to step up the output of Doctors to the utmost, the General Hospital is being re-organised on the lines of a modern teaching hospital in order to provide the maximum facilities for this purpose. It is also hoped that when the improvements contemplated in the programme are completed a second medical school could be opened in Kandy in conjuction with the University so that it will be possible effectively to increase the annual output of Doctors with a view to achieving the target of 4,000 by 1972. The plan of development for institutions is explained elsewhere. All medical institutions have now been graded and staffing requirements of medical and para medical personnel have been standardised and laid down for all grades of institutions in accordance with the recommendations of the Health Council. In accordance with this, the total number of Doctors required by the Department at present is 996. Of this figure 580 are the number of specialist doctors required and the balance are general practitioners. In 1931 the total number of Doctors in the Department was 341 and this has increased to 814 at the end of last year. In order to effect the rapid build-up of the specialist cadre, it is proposed to take the maximum advantage of the Colombo Plan and other aid programmes which provide Fellowships and Scholarships for the training of Doctors.

The Department has, at present, about 60 Doctors on the average per year in training overseas for specialist qualifications. This number is, however, inadequate to meet the necessary rate of build-up as the net annual increase in the cadre of specialists is only about 20. It is hoped that the Department would be able to increase the number of Doctors who could be sent out for specialist training to at least 80 annually. It must also be mentioned that for want of doctors a large number of rural medical institutions are being staffed by Apothecaries. The cadre of Apothecaries has increased from 418 in 1931 to 926 in 1954, but it would by no means be an ideal situation for a Doctor to be replaced by an Apothecary even in the very lowest grade of institutions. Until more Doctors are available a fairly large number of our rural units will, however, have to be staffed by Apothecaries.

(b) NURSES

There is at present an acute shortage of all grades of trained nursing personnel. Although the number of nurses increased from 612 in 1931 to 1,996 by the end of 1954, it could by no means be said that the cadre of trained nurses in the Department is at all adequate. The present cadre of nurses is composed of both trained and semi-trained personnel. As against 931 trained nurses (including Religious Nursing Sisters and Mothers) there are 640 emergency nurses, 81 temporary qualified nurses and 344 pupil nurses. It would hence be seen that more than half the cadre of Nurses in the Department are only semi-trained. It has also to be pointed out that due to the extreme shortage of nurses, it is necessary to employ attendants to attend to the routine domestic nursing duties in wards. The cadre of attendants has increased from 1,414 in 1931 to 5,139 in 1954. Though it is medically unsatisfactory to employ any grades other than fully trained nurses in institutions, circumstances compel the employment of attendants and semi-qualified nurses in order to meet the extreme shortage of nursing personnel. The shortage continues to be grave in spite of every attempt being made to increase the qualified nursing cadre. Two Nurses' Training Schools are already functioning in Kandy and Colombo, a third school for training nurses for T.B. nursing has been started with Colombo Plan Aid at Welisara, work has commenced on two more Nurses' Training Schools at Galle and Kurunegala, and plans are ready for commencing construction of another Training School in Jaffna. It is hoped to have at the end of the six-year period a Nurses' Training School attached to each one of the 8 Provincial Hospitals.

The present annual output of trained nurses is about 100, but due to heavy wastage, the net annual increase in the cadre is about 30. The present requirements of the Department are estimated at about 4,900. With the

desirable target of one trained nurse per thousand of population it will be necessary to have a cadre of 12,500 trained nurses by 1972 for a likely population of 12½ million. In the U.K. the ratio of nurses to population is 1:300, while in Ceylon today the ratio is about 1:4,100. The present number of nurses to beds works out to a proportion of 1 nurse for every 20 patients by day and 1 nurse for every 40 patients by night. If the emergency nurses are also left out, the ratio of fully trained nurses to patients will work out to 1:30 by day and 1:60 by night. In England on the other hand the proportion of nurses to patients is roughly about 1:2½ or 3 by day and 1:8 or 10 by night. As an immediate target during the six-year period we have set a proportion of 1 fully trained nurse to 15 patients by day and 30 patients by night. On this basis the total number of nurses required at the end of the six-year period will be 7,200. This would require training facilities to be provided which would bring an out-turn of 400 trained nurses annually. In order to assist in the rapid build-up of nursing cadre a scheme of employing nurse-aides who will be fully trained in basic nursing duties has just been started at Kandana and it is proposed during the next six-year to extend this scheme to as many hospitals as possible. Further, some of the routine clerical duties in the wards will be passed on to ward clerks so that all available trained nurses could be employed to the maximum advantage. The Kandy Nurses' Training School, when, completed, will have a capacity of 250 pupil nurses while the T.B. Nurses' Training School at Welisara will be able to turn out about 50 trained nurses each year. Each of the training schools under construction and proposed to be constructed at Galle, Kurunegala and Jaffna will be able to provide for the training of 120 pupil nurses every year. Arrangements have already been put in hand for the training annually of about 10 specialist nurses overseas under the Colombo Plan and WHO assistance.

(c) PARA-MEDICAL PERSONNEL

Provision has already been made in the plan for the training of more Public Health Inspectors, Public Health Midwives, and Public Health Nurses at the Kalutara Health Unit. It is proposed under the aid programmes to expand the present health unit to a fully equipped training institute.

(d) DENTAL NURSES

A Training School for Dental Nurses has been set up at Maharagama with assistance under the Colombo Plan from the New Zealand Government. It is hoped that about 25 trained Dental Nurses will be available annually from this school.

With regard to the other technical staff required for the Department arrangements are now in hand for enlarging training facilities and for specialist training under International Fellowships and Scholarships in the U.K. and foreign countries. Here again Ceylon relies largely on the various technical asistance programmes now in operation.

(*e*) OTHER TECHNICAL STAFF

The requirements of other technical staff would also be heavy. The Department has now in hand arrangements for enlarging training facilities locally, and for specialized training under International Fellowships and Scholarships in Commonwealth and other countries. Facilities are available for local training of about 50 X-Ray technicians, 100 Physiotherapists, and 100 Apothecaries, for employment during the six-year period. In addition, 180 more Clerical Service officers, 400 attendants, 300 labourers, 300 conservancy labourers, 50 Dispensary orderlies, 250 midwives and 26 tutors would be required to man the medical institutions that will be completed during the course of the six-year period.

Special Campaigns

I—TUBERCULOSIS

The early measures adopted to combat the growing problem of Tuberculosis were largely curative in character. An Anti-T.B. Institute was established in 1915 with the Kandana Sanatorium for early cases and the Ragama Chest Hospital for more advanced cases. Another sanatorium for early cases was opened in 1952 and a Chest Clinic was later opened in Jaffna.

The current Anti-T.B. Campaign is based on a report submitted in 1952, by Mr. Donald Barlow, an eminent thoracic surgeon, whose services were made available to the Government of Ceylon under the Colombo Plan Technical Assistance Co-operation Scheme. He, on invitation, re-visited Ceylon in June 1954, and assessed the progress made in the following terms :—

> " Great strides have been made in the prevention and cure of Tuberculosis . . . . . The Government of Ceylon have undoubtedly realised that Tuberculosis is a curable and preventable disease and have attacked the problem with vigour and determination. No Government could have been more alert to its responsibilities ".

Chest Clinics equipped with modern facilities for quick and accurate diagnosis and for the treatment of ambulatory and domicilliary cases were established at Colombo, Galle and Ratnapura, are in the course of construction in Kurunegala, Kandy and Galle, and will shortly be established

at Badulla and Batticaloa. These, with the exception of the Galle Clinic which is a donation by Mr. Thassim, Mayor of Galle, are being financed by the Australian Government under the Colombo Plan.

Mass miniature radiography for the detection of T.B. cases is being employed in Colombo. A nation-wide B.C.G. Campaign which was started in 1949 was revived in May last year with UNICEF/WHO assistance and up to the end of April this year 1,740,000 persons have been mantoux tested and about 940,000 susceptibles have been given B.C.G. vaccination. Home Visiting and Surveillance of Contacts are being carried out. These steps have effected a drop in the percentage of contacts infected from 2.2 in 1952 to .4 in 1954.

The number of beds for T.B. patients has been increased from 1,962 in 1952 to 2,800. This bed strength will be further increased to 4,300 at the end of 1956.

A school for training in T.B. nursing and laboratory facilities for carrying out the most modern clinical and bacteriological tests for diagnosis have been established at Welisara from funds given by the Australian Government. A part of the equipment for these institutions was supplied by the Government of the United Kingdom. Arrangements are being made for the training of Health Visitors, Radiographers, Dark Room Attendants, Laboratory Assistants and Nurse Aides.

A scheme of financial assistance for T.B. patients and their dependants has been introduced. Rs. 2,500,000 has been provided for this in the current year which was recently increased by Rs. 800,000. Approximately 4,500 cases are receiving assistance at present.

A rehabilitation centre for T.B. cases is under construction.

All these services will, in the coming years, be improved, expanded and extended. The campaign on health education in T.B. will be intensified. Physiotherapy and Occupational Therapy will receive more attention. Plans are being prepared for the construction, with the aid of Australia, of a National Chest Institute at Colombo.

II—MALARIA

Malaria was probably the one disease which most retarded the economic development of this country. Besides endemic malaria there were from time to time severe epidemics of malaria, the worst of which occurred in 1934 accounting for no less than 80,000 deaths and involving Government in an expenditure of over Rs. 10,000,000. Anti-Malaria work which had received some attention since 1911 was, after this epidemic, intensified. Much success was, however, not achieved until in 1945 residual spraying of

D. D. T. was introduced with spectacular results. Malaria has now been practically wiped out. The credit for this is almost entirely due to the untiring efforts, great organising ability and selfless devotion to duty of the late Dr. S. Rajendram, whose recent demise whilst still in service is an irreparable loss to the country. It is fitting and proper that there should appear in the pages of this publication this tribute to the memory of one who has without doubt made the greatest contribution to the economic development of Ceylon. The table below gives the morbidity and mortality figures for Malaria from 1925 down to 1954.

Malaria Mortality and Morbidity rates

Year	*Malaria Morbidity Rate per 1,000 Population*	*Malaria Mortality Rate per Million Population*
1925	167	268
1926	221	322
1927	178	256
1928	312	420
1929	322	428
1930	335	454
1931	272	312
1932	286	312
1933	226	260
1934	420	420
1935	973	8,452
1936	522	1,355
1937	403	771
1938	352	821
1939	543	1,701
1940	572	1,532
1941	533	1,182
1942	534	854
1943	348	1,156
1944	265	893
1945	390	1,315
1946	412	1,880
1947	196	663
1948	109	473
1949	99	329
1950	81	252
1951	58	207
1952	34	132
1953	11	89
1954	3.5	53

The introduction of D. D. T. revolutionised all Malaria Control work. A scheme for the residual spraying of D. D. T. was drawn up and put in operation in Anuradhapura in 1945, and so phenomenal was the success achieved that demands were made for the extension of the scheme to the

entire Island. This was done in the latter part of 1946. The spectacular results shown in the table amply justified the expenditure of Rs. 87 million on the scheme for the three years 1947–1949.

Residual spraying has now been suspended in many places, and a number of Vigilance Units have been set up instead. The function of these units is to be on the look out for evidence of malaria transmission. Officers attached to these units inspect houses and breeding places and take blood films from fever cases for examination for malaria parasites. All parasitologically positive cases of malaria are being given treatment with the latest anti-malarial drugs—Amochiaquin and Primaquin. There are at present 48 Malaria Control units for residual spraying, 33 Vigilance Units and 55 Vigilance sub-units in operation.

III—FILARIASIS

A Filariasis control scheme was prepared in 1947 and a Superintendent appointed in 1949 for the co-ordination, control and development of Anti-Filariasis work. A well equipped clinic was established at Dehiwala and in eight other endemic areas all of which are in the coastal belt between Negombo and Matara.

At the request of the Government the WHO sent Dr. M. O. T. Iyengar, an expert of Filariasis to investigate and advise on the control measures to be adopted in the prevention of this disease. He visited the Island twice and submitted two reports advising on the control of both the urban and the rural types of Filariasis. He also trained Medical Officers, Sub-Inspectors and Entomological Assistants to carry out surveys and apply scientific methods in its investigation and control.

There is no chemotherapeutic agent which will prevent an individual being infected with Filariasis of the urban type and the anti-Filariasis measures in respect of this type have necessarily to be confined to the control of the vector, the common house mosquito *Culex Fatigans*. Measures to be adopted therefore were all in the nature of environmental sanitation with a view to destroying the breeding places of these mosquitoes. Co-operation of the local authorities is of the utmost importance.

In the case of Rural Filariasis, the problem is one of destroying the *Pistia* plant for it is in areas covered with this plant that the *Mansonia* mosquito is found to breed. Weedicide Phenoxylene 30 is now being successfully used for the eradication of the plant and the rural type of Filariasis will soon cease to be a public health problem.

IV—VENEREAL DISEASES CONTROL

The prevention of V. D. received the serious attention of the Government after the visit to the Island in May 1920 of the Venereal Diseases Commission appointed by the then Secretary of State for the Colonies. A scheme of Anti-V. D. work was prepared based on free treatment, publicity and compulsory notification.

In 1936, a revised control scheme was drawn up which provided for the training of an officer in curative and serological work, the establishment of a net work of clinics throughout the Island in outstation hospitals and dispensaries, and the launching of a campaign to educate the public by means of posters and pamphlets, broadcast talks and lectures, cinema films and lantern slides.

V. D. control work received an impetus with the visit to the Island of Dr. George Leiby, Professor of Syphilliology of the University of California and Consultant Expert on V. D. to the WHO. Pursuant to one of the recommendations made by him, the WHO sent in July 1951 a V. D. Control Team consisting of a Senior Adviser, a Public Health Nurse and a Serologist, equipment for the establishment of a serology laboratory, and drugs for the treatment of V. D. The Team remained in Ceylon and worked on the project until December, 1953.

The Campaign at present consists of a central V. D. Clinic at Colombo, 9 full-time central V. D. Clinics at Galle, Kurunegala, Jaffna, Negombo, Ambalangoda, Matale, Badulla, Katugastota and Anuradhapura, 12 peripheral V. D. clinics attached to the above Central Clinics and 60 part-time V. D. Clinics conducted at Government institutions. The case-finding programme and contact investigation, screen testing and education of the public have been extended.

The programme for the next six years is designed to consolidate the progress already made and to intensify action in this direction by obtaining the co-operation of private practitioners in the early diagnosis, adequate treatment, contact investigation, and follow-up of V. D. patients and by recruiting Medical Officers and other personnel with a special aptitude for V. D. service. The extension of the service is also proposed by the establishment of a clinic at the Port of Colombo and 6 Central Clinics throughout the Island It is, in addition, hoped to make available clinical facilities at provincial and base hospitals. It is further proposed to establish a V. D. Research Laboratory in Colombo and screen testing both at Colombo and outstations. Steps will also be taken to eradicate Yaws from those areas where disease is endemic.

V—LEPROSY

Until about 1932 the control measures to prevent the spread of leprosy in Ceylon were mainly confined to segregation of lepers. This segregation was done at two places namely the Hendela Leper Asylum, the oldest leprosy institution in South East Asia, established by the Dutch in 1708, and the Mantivu Leper Asylum etablished in 1925. They were regarded as, and in fact were, leprosy homes and the lepers who were sent there went into these institutions prepared to spend the rest of their lives there. Seldom were there any discharges, for cures effected were few, and even if there were any, society refused to have them.

Leprosy control work took a new turn in 1932. A leprosy survey was for the first time undertaken that year. The services of an expert—Dr. R. C. Cochrane, the then Secretary of the British Empire Leprosy Relief Association—were obtained in 1933 and again in 1935 to examine and report on the leprosy problem in Ceylon. Action to implement the recommendations made by him was taken in the subsequent years but progress unfortunately was slow. Clinics were established in several centres in the areas where leprosy was more prevalent, viz., the Western, Southern, and Eastern Provinces. A leprosy colony was established in Urugaha on an extent of about 100 acres, which now has 12 twin cottages with accommodation for 40 patients.

Due to these measures, and the propaganda work carried out by the Government, leprosy is now regarded by the public as a curable disease. The leper asylums have changed their character and are now known as leprosy hospitals. The reluctance to seek admission to these institutions is disappearing, and persons suffering from leprosy now come forward willingly for advice and treatment. The detection of leprosy cases is not now as difficult a problem as it was in the past. Over the last few years a little over 200 new cases on the average have been reported each year. There are at present in all 2,774 known cases of leprosy in the Island as against 1,489 in 1933. A fresh leprosy survey is proposed and the need for a more vigorous compaign for the control of leprosy is apparent.

Dr. Cochrane visited the Island again in 1951, this time as a WHO Consultant, to assess the success or otherwise of the leprosy control meaures adopted in the Island, and to investigate the possibility of initiating Bacteriological, Pathological and Orthopaedic work and other modern research and treatment techniques in the fight against leprosy. His recommendations include reorganisation of institutional segregation for the reception and retention of only infective cases, rehabilitation of the discharged

lepers, special homes for children and for cripples, employment of infective patients in the asylums in place of attendants, intensification of survey work, lepronin testing, B. C. G. vaccination, and the treatment of suitable leprosy patients in the local hospitals and dispensaries and in their own homes.

Following this visit of Dr. Cochrane the WHO entered into an agreement with the Ceylon Government in 1953 to assist in the implementation of his recommendations and undertook to provide a Leprosy Specialist, a Pathologist and an Occupational Therapist for the purpose.

VI—CANCER CONTROL

The treatment of cancer was commenced at the General Hospital, Colombo, in 1929 when radium was first imported into this country. In 1942, two Medical Officers were sent for special training in Radio-Therapy, and in 1944, a Radio-Therapy Department was opened.

At present the Department of Radiology of the General Hospital, Colombo, is divided into the Division of Medical Radio-Diagnosis and the Division of Medical Radio-Therapy. Three qualified Radiologists cover the work of the two Divisions and, in addition, carry out inspections of the X-Ray Departments of provincial and other outstation hospitals. Medical Radio-Therapy is only done at the General Hospital, Colombo. It is hoped that modern deep-ray and surgical and other modern diagnostic and curative facilities will be centralised at the modern Cancer Clinic Institution now in construction at Maharagama. Six Radiologists and one Hospital Physicist are amongst the minimum staff being applied for under the International Aid Programmes, to place the Department of Radiology of the General Hospital, Colombo, on a proper footing. Additional static X-Ray machines and other medical electrical equipment are also on order.

VII—MENTAL HEALTH

At the request of the Ceylon Government Professor Mapother submitted in 1938 a Report on the arrangements existing in Ceylon for the treatment of mental disorders, and made certain suggestions for their improvement and reorganisation. These included, *inter alia*, treatment of the criminal insane in separate institutions within the purview of the prison authorities, adaptation of Angoda Asylum for the accommodation of only the chronic insane, certain changes in the law relating to civil cases, creation of a special service of Medical Officers devoting themselves to psychiatry as a career, and launching of a public propaganda campaign to ensure that patients will be brought to notice early enough for curative treatment.

Some of the recommendations have been or are being implemented, some have been only partially implemented, and the rest have unfortunately not been implemented yet.

A new Psychopathic Hospital and a House of Observation are under construction at Mulleriyawa and it is proposed to construct, also at Mulleriyawa, a Home for mentally defective children. Plans are ready for extensions to the Pelawatte Mental Home. These projects will considerably relieve the serious overcrowding at Angoda. It may be mentioned that the new Psychopathic Hospital when completed will serve all early and acute cases of mental disorder.

Professor Mapother has also stressed the need for a separate institution for the custody and treatment of the criminal insane. It is universally agreed that the criminal and civil insane should not be accommodated in the same institution. The precautions and restrictions which have to be adopted for the custody of the criminal insane are quite unsuitable for, and often detrimental too, the interests of the other patients. It is therefore proposed to provide a separate building for the accommodation of the criminal insane.

It is clear also that a much larger number of Psychiatrists than are at present available will be needed. With a view to encouraging more Medical Officers to specialise in this field a psychiatric service has been established and it is proposed to increase the strength of this service and send more Medical Officers out to England on Scholarships for training in this speciality.

The Lunacy Ordinance was designed mainly to legalise segregation of those dangerous to themselves and to others. Initiative for the admission of a patient to the mental hospital is with the officers of the Law, and the whole procedure of admission assumes the form of a trial of an accused. The position should actually be the reverse if treatment is to be afforded for mental disorders. Professor Mapother therefore recommended certain changes in the law, and it is proposed to give effect to these recommendations shortly. The draft of a new Mental Treatment Act to take the place of the present Lunacy Ordinance has already been prepared which provides for :—

(*a*) voluntary treatment on written application,
(*b*) temporary treatment for one year under the recommendation of the medical practitioner,
(*c*) emergency admission of violent and uncontrollable patients on the orders of a J.P.,
(*d*) admission through District Courts by a Police Officer or Headman,
(*e*) admission on a petition by guardian, relation or friend.

Public Health

I—ENVIRONMENTAL SANITATION

Since 1925, when the re-organisation of the higher staff of the Medical Department took place, much has been achieved in the field of public health in Ceylon. However, there do still exist certain urgent public health needs. The most urgent of these is the avoidance of preventible diseases caused by unsafe water supplies, soil pollution, lack of adequate environmental sanitation facilities, in general, in both the urban and the rural areas of Ceylon, and carelessness in ensuring hygienic surroundings, in particular. These factors are mainly responsible for such diseases as Ankylostomiasis and other bowel diseases such as dysentery and diarrhoea, and fevers such a typhoid, enteric, etc. The lack of proper drainage in most urban and rural areas has been responsible for the spread of filariasis, a disease transmitted by the mosquito which breeds in collections of dirty water, especially in catchpits and stagnant pools. A special campaign to deal with the control of this disease was set up in 1939 but owing to poor environmental sanitation conditions, there have not been any very remarkable results obtained. Although considerable headway has been made in reducing the death rate from these preventible diseases due to bad sanitary conditions, especially unsafe water supplies and indiscriminate soil pollution, considerable numbers of the population still seek treatment on this account at the hospitals and dispensaries. Ankylostomiasis recorded a death rate of 430 per million in 1925. In 1953 the rate had been reduced to 83 per million. As against this drop in the number of deaths, however, the number of cases of this disease treated in 1954 still continued to be high. 15,889 received treatment in the hospitals as indoor patients and 532,460 as outdoor patients. Dysentery accounted for a death rate of 756 per million people in 1925. By 1953 the death rate had dropped to 84 per million. In spite of this, however, 12,925 indoor cases and 194,734 outdoor cases were treated for this disease in 1954. Typhoid is another disease that accounts for heavy attendance at the hospitals. In 1925 the death rate per million of the population was 146. In 1953 this had dropped to 49 per million people, but the number of cases treated at our hospitals stood at 4,549.

Gastro-enteritis and diarrhoea were responsible for a death rate of 1,652 per million of the population in 1925, while the rate for 1953 had come down to 431. The attendance at the hospitals in 1954, however, was 40,547 indoor and 656,095 outdoor. The vast majority of the people in the rural areas obtained their drinking and domestic water supplies from unprotected wells, springs, tanks and rivers. It is only in Colombo, Kandy,

Galle and a few large towns that a pipe borne water supply is available. With a view to improving the purity of water supplies, schemes of assistance by way of grants for the construction of protected wells are being operated by the Rural Development Department through Rural Development Societies, and the Land Commissioner's Department. The Land Development Department as well as Local Bodies too construct communal wells in order to ensure private water supplies.

Ceylon has sufficient rainfall only in the Wet Zone to ensure enough water to supply all her domestic requirements. Hitherto, town water supplies were drawn either from underground sources or by impounding streams in upland valleys. These were very few. River intakes have very seldom been exploited at all. In view of the improved methods of purification now available, greater use of water drawn from the lower regions of rivers can be made use of in future. In order to exploit these sources of water and in order to ensure measures for the prevention of pollution of rivers and their drainage basins, proposals are being considered for the enactment of a water rent on the lines of the legislation enacted in the United Kingdom in 1945. The legislation envisages the creation of a Central Statutory Water Board entrusted with the duty of conserving all inland water resources, ascertaining information as to yield, behaviour and quality of the nation's water resources, and as to the demands of industrial and domestic uses, as well as the prevention of pollution. Such a Central Water Board would be associated with regional water works and all water schemes would be planned and executed by the Central Water Board in association with its Regional Boards. The Public Health Engineering Branch of the Department of Health has prepared plans for the development of water supply schemes, drainage schemes, and sewage schemes for a number of areas in conjunction with the Local Authorities for those areas. While the execution of these plans would ensure sanitary water supplies to urban areas, the chief supply in rural areas will continue to be wells. The principle should be to provide protected wells to each hamlet serving about 25 to 30 houses. However, such a scheme of providing protected wells would have to await trials in certain pilot areas. In the meantime, financial provision of about 3 to 4 times the present amount now provided, will have to be made annually to enable protected wells to be constructed throughout the country within a period of 10 years. In spite of intensive health work done among the people for the last 25 years, the number of latrines provided in rural areas continues to be inadequate. It is estimated that there are only 393,814 latrines for a total 1,400,000 houses. Thus, it will be seen that more than a million houses are still lacking in proper latrine facilities. Even in the city of Colombo, where there is a sewage system, as much as 40,000 of the 60,000

premises within Municipal limits are not connected with the main sewers. They still have a dry earth system with catch-pits. A fair number of premises do not have any latrines at all.

The Department of Health Services has an aided scheme which makes available a concrete squatting plate or water sealed syphon and a bag of cement to each rural householder who is unable to afford the construction of his own sanitary latrine. This scheme has been responsible for the construction of 8,862 latrines in 1949 and about 17,000 in 1953-54. Under the Rural Development Department's assistance scheme, 19,600 latrines were constructed in 1952-53. It would therefore appear that the total number of latrines constructed annually in recent years is in the region of 35,000.

The urgent necessity for more intensive measures in regard to environmental sanitation is the fact that diseases resulting from bad environmental conditions are causing a serious economic loss to the country. From a survey carried out towards the end of 1950, among 17,946 householders, it was revealed that on an average week-day 5.32 per cent. of the sample population were unable to work because of illness or injury as against 4.72 per cent. in the United States. In Ceylon, therefore, an estimated number of 237,000 persons between the ages of 16 and 64 years are disabled on any average week-day and are prevented therefore from engaging in gainful employment. The average number of days of disability that may be expected from each person, it was found was 19.4 days as compared to 17.2 days per person in the U. S. A. It was also noted that the prevalent disabling illnesses increased with advanced age until 55 years when about one in every nine persons was found to be disabled. Of those who were thus disabled, 34 per cent. had been disabled for more than three months and about one-third for less than one week. It was also noted that disability was more common in the lower income groups than in the higher.

Infective and parasitic diseases were found to be the commonest causes of disability in the age group 15 to 44 and rheumatic diseases in the older age group, 45 to 64. Infective and parasitic diseases chiefly constituted a preventible group of diseases causing incapacity for work and are in the main caused by poor environmental conditions. What was found true in 1950 is doubtless true today. In 1954 it was observed that influenza, which is an infective disease, was the chief cause. Next came infective and parasitic diseases other than influenza. Eye infections and dental disorders formed a not inconsiderable proportion of cases seeking treatment. Incidentally, injuries contributed appreciably to the general picture of

diseases. These causes are in a large measure preventible. Rheumatism other than rheumatic diseases of the heart is fourth in the list of diseases treated at hospitals and dispensaries and is also preventible. The economic loss to the country due to such extensively prevailing disability has, however, not been so far computed. According to the report on a survey of Ceylon consumer finances by the Central Bank of Ceylon made in 1952-53, the individual earnings of the people in Ceylon was calculated to be Rs. 107.4 a month. If the estimated number of persons aged between 16 and 54 years who were disabled and unable to work was the same for 1953 as in 1950 and the average number of days lost was the same for the two years, then the loss to personal income in 1953 for all the 237 persons who did not work for an average 19.4 days in the year would be approximately Rs. 19 million. Adequate and intensive measures are therefore immediately needed to eliminate such preventible causes of disease. If these had been nearly a third, both the economic loss to the country and the loss to personal earnings could have been avoided. Such measures should take the form chiefly of improvement of environmental sanitation. The Department, in addition to its aided scheme of latrine construction and propaganda, have with the assistance of a Public Health Engineer from WHO and a grant from UNICEF started a pilot project in environmental sanitation in Kurunegala. Steps are also being taken to improve the nutrition of the people and under the new re-organisation scheme, more intensive work in the field of maternity and child health is also being undertaken.

II—MATERNITY AND CHILD HEALTH

Maternity and Child Health work has always been the most popular sector of Public Health activity. It is the one sector of Public Health to which the people have readily responded; their appreciation of it being due to the realisation of the fact that all measures directed towards the improvement of the health of the mother and child are of primary importance in the securing of adult fitness. The present scheme of maternity and child welfare work which provides for the care of the expectant and nursing mother, and the infant, till it reaches the school-going age, when it will come under the safeguards provided by the School Health Service, has received uninterrupted attention of the Officers of the Department since the inauguration of the work on a systematic basis, in 1926.

Apart from the Medical supervision, Health Education coupled with intensive co-operation of the public is the fundamental principle and basic idea of maternity and child health work. All schemes for the promotion of this activity have inevitably therefore centred round this

principle. Through the mother and child it has been possible to reach the family, and thus Maternity and Child Health has been the pivot on which all health work has been centred.

The personnel engaged in this work consist of Medical Officers of Health, Public Health Nurses and Public Health Midwives. The following summary shows the increases of the staff engaged in this work from 1926 to 1954 :

Staff employed on Maternity and Child Health Work (Selected Years)

Staff	1926	1936	1946	1954
Medical Officers of Health ..	1	11	88	104
Public Health Nurses ..	2	23	42	108
Public Health Midwives ..	4	114	699	1,152

The work of the Medical Officer of Health, the Public Health Nurse and the Public Health Midwife falls into two categories, viz., service rendered at home and service at institutions such as Maternity Homes, Rural Hospitals and Health Centres. They can best be classified as Domiciliary and Institutional.

Ante-natal care is provided at the 750 Welfare Clinics that are distributed in the Island and at the Ante-Natal Clinics held in district and provincial hospitals. The work in the clinics is carried out by Medical Officers, Public Health Nurses and Midwives. In addition ante-natal care is provided in the homes by the Public Health Nurses and Field Midwives.

Institutional care is provided in the maternity beds of district and provincial hospitals and in the Maternity Homes. In the Maternity Wards of hospitals there are 2,783 beds for maternity cases. The number of Maternity Homes has also increased considerably since the first one was established in 1937. At present there are about 140 Maternity Homes scattered throughout the Island to provide institutional care for normal cases.

As a result of this service it has been possible to reduce the maternal death rate from 14.4 in 1942 to 4.6 in 1954. There is no doubt that other factors such as the improvement of the standards of living, maternity benefits, the use of anti-biotic drugs and the control of malaria have all contributed to the reduction of this rate.

This service will be further expanded by providing more midwives especially to backward areas and improving the quality of obstetric work that is now done.

It has been universally claimed that the infant mortality rate is the most sensitive index to the success of Maternity and Child-Welfare work. The progress of this work can be judged from the reduction of the infant mortality rate from 166 per thousand live births in 1939 to 71 in 1953. The main functions of the Child Health Service as at present organised are advisory, preventive and educational. Continuous medical supervision is given to the child both when well and ill. This care is provided by examining the children at the Well-Baby Clinics conducted by Medical Officers and Apothecaries and by home visits of Public Health Nurses and Midwives.

This service is to be more intensified in the future so that preventive and curative Paediatrics may merge into one scheme of Social Paediatrics or Child Health. In the future plans, it is also proposed to give more care and attention to the premature child because it is found that about 30 per cent. of children born in Ceylon are premature, and a high percentage of infant deaths is among this group.

In this context it might be mentioned that Family Planning plays an important part in bringing forth healthier babies and in maintaining the health and well-being of the mother. Education of the parents to space and limit the family is to be carried out wherever necessary.

III—SCHOOL HEALTH WORK

School Health Work first started in Sweden in the year 1840 and in Ceylon in 1919 when the first appointment of a School Medical Officer was made. The first appointment of a Medical Auxiliary, i.e., a School Health Nurse was made in 1920. School Health work was intensified with the inauguration of the Malaria Control and Health Scheme in 1937, with the Field Medical Officers undertaking this work in their areas. School Health work as carried out in Ceylon consists of the following activities :—

(*a*) School Sanitation,
(*b*) Medical Inspection of School Children,
(*c*) Medical Correction of defects,
(*d*) The control of communicable diseases, and
(*e*) Health Education.

A Medical inspection of school children has afforded the authorities information revealing the trends in health of this group. The parent, teacher, health officer and auxiliary personnel are brought into close

contact with each other to secure and to improve the health of school children. According to the scheme in Ceylon, School Medical inspection used to be carried out in the Lower Kindergarten, in the 4th Standard and in the 7th Standard. It was found, however, that with the available personnel it was not possible to cover all schools in each health officer s area. With the inauguration of the Reorganisation Scheme of the Department of Health in 1954, schools in close proximity to Central Dispensaries have been allotted to Apothecaries for medical examination, and in addition full-time Apothecaries are being used for this work.

The main defects detected among school children are dental caries, malnutrition, anaemia, hookworm, infestation, tonsils, and adenoids. For the correction of dental defects, in addition to the dental clinics available in Colombo and some of the major outstations, six school dental clinics in charge of Dental Nurses have been recently organised and are functioning satisfactorily. With regard to hookworm infestation, periodic treatment is given at all schools and measures have been intensified with regard to latrine construction. Malnutrition forms about one-sixth of the total defects detected. The main points in correction of this defect are improvements in the diet of the child. In this connection it is hoped to make available supplies of skimmed milk to schools in areas where there is difficulty in obtaining sufficient protein in the diet.

There are at present approximately 7,000 schools with 1,500,000 school children. The organisation available is inadequate to deal with the problem. To adequately cover all schools there should be at least 300 full-time School Medical Officers to attend to this work, with a corresponding number of auxiliary personnel. With regard to dental work in schools the Dental Training School started in Colombo in 1955 would provide an average of 15 nurses a year for the extension of the Preventive Dentistry Service.

Satisfactory sanitation of schools is of prime importance for the training in public health of school children. At present there are a large number of schools, which do not have a single latrine, and a scheme has recently been organised in conjunction with the Education Department to provide latrines for all schools within a period of eight years. The provision of latrines to schools which have none at all would, of course, receive highest priority.

The training of teachers in health work is also being intensified and expanded at all Teacher Training Colleges, with the assistance of the WHO Health Adviser.

As a major part of the formative period of health and physical fitness of an individual normally lies within his or her period of schooling, it is very essential that an intensification of the different activities of the School Health Service be effected as detailed above.

IV—TRAINING OF PUBLIC HEALTH PERSONNEL

From the year 1926 when the Health Unit was established at Kalutara, it has been used as a Training Centre for public health personnel. In the early years only Medical Officers were given a short period of training prior to being appointed Medical Officers of Health ; later, Public Health Nurses received six months' training in field work and Midwives after a course of one year's training at the De Soysa Lying-in-Home were given a further period of 6 months at this and other Health Units. Up to 1945 Public Health Inspectors were trained in Colombo. In that year a Hostel for Public Health Inspectors was established at Kalutara and thereafter all the training of these Public Health Inspectors was centred in Kalutara. Persons other than those of the Department of Health Services are trained from time to time at the Kalutara Health Unit, and amongst these are Rural Development Officers and Mahila Samiti Sewikas. Since this Health Unit is a model Health Unit, officers from other countries in South-East Asia are sent there for short periods of training. It is now proposed to intensify and expand the training courses that are established there. For this purpose a Central Institute of Hygiene is to be established. The Government will provide the necessary buildings, and assistance from WHO has been promised in the assignment of personnel and from UNICEF in the form of equipment. The Institute will undertake the training of Medical Officers of Health, Public Health Inspectors, Public Health Nurses, Public Health Midwives, Officers from other Departments and voluntary workers in public health. The capital expenditure on this project will be about Rs. 2½ million and the recurrent expenditure about a quarter of a million rupees. The Institute will be developed in stages so that it would be completed within the next three to four years.

V—DENTAL HEALTH

As a result of medical inspections of children in schools all over the country, it was discovered that dental defects formed a considerable proportion of the defects discovered amongst the children examined. In 1954 the total number of school children examined was 128,503 and of the 140,156 defects discovered 20 per cent. were dental defects. Furthermore,

dental disorders during 1954 accounted for 4,144 cases seeking indoor treatment in hospitals and 224,135 cases treated at Outdoor Dispensaries. An attempt to deal with these sufferers has been made by the Department. Dental Clinics had been opened in the past at various large hospitals such as Batticaloa, Galle, Kandy, Jaffna and Kurunegala in addition to the Dental Institute in Colombo. Two mobile Dental Vans toured the country according to a pre-arranged programme. They halted at selected schools and provided dental treatment to a certain proportion of pupils of these schools.

The need for more intensive measures for dental care of the population has now been felt and to meet this want it was decided to establish a Preventive Dental Service. The major difficulty in providing such a Preventive Dental Service is the dearth of trained Dental Surgeons in the country. The existing Dental Surgeons are all needed for curative work, and it is not possible to obtain their services for work in the field of preventive dentistry.

It has been decided therefore to adopt the scheme in operation in New Zealand where preventive work is entrusted to highly trained Dental Nurses working under the care and supervision of Dental Surgeons. As a start, 12 nurses were sent for training in New Zealand and on their return were assigned to School Dental Clinics in Colombo and the suburbs. In order to increase the output of trained Dental Nurses, a Dental Nurses' Training School has now been established at Maharagama with assistance from the New Zealand Government to the extent of £ 50,000, under the Colombo Plan. This School will provide a two-year course of training and will be equipped to accommodate and train 50 pupil nurses at a time ; the output will be between 15-25 trained nurses each year. In the first instance the trained nurses are to be appointed to Dental Clinics established in association with Schools, and it is expected that each such clinic will be able to serve about a thousand persons.

VI—HEALTH EDUCATION

It has long been realised that if public health work is to be effective, it must be carried out with the co-operation of the public. To enlist this co-operation it is necessary to develop a true understanding of health work among the people. This can only be achieved by health education which involves not only mere passing of information but also the study of people's health habits, practices, and beliefs, and the development of methods by which the public could be stimulated to act on the health information presented to them. By this means it would be possible to

eliminate to a considerable extent the amount of ill-health that is prevalent in the country. It is really a sound national investment which would pay fruitful dividends.

Health education on an organised basis was undertaken with the establishment of the first Health Unit at Kalutara in 1926, and a system of lectures on health subjects given to the public with the aid of either the magic lantern or the cinema. With the appointment of a Superintendent of Health Education, the development of health education work throughout the Island was accelerated.

In order to bring the health education work up-to-date and to keep in line with what is being done in the more progressive countries, the services of a WHO Health Educator were obtained in 1954. He is in the Island at present and is reviewing the present state of health education work and has also submitted certain recommendations for the re-organisation and improvement of the health education activities of the Department.

It is planned to establish a Health Education Sub-Division within the Division of Public Health Services with a central organisation for the re-orientation, intensification, and co-ordination of the health education programme, and a Health Education Production Unit for the production of health education material required for administration purposes in the field.

Medical Research

THE realisation of the importance of organised research resulted in the establishment of the Medical Research Institute in 1946. A scheme of development spread over a period of 10 years was approved by the State Council. The fully developed Institute was to have 10 Departments covering the whole range of research activities relating to Medicine. Post-war problems retarded this planned development. However, considerable progress has been made. Steps are now being taken to provide much needed accommodation in the form of a three-storeyed block of buildings in the original plan of development.

The other notable step in the progress of medical research is the establishment of a separate Division of Laboratory Services by the Health Act of 1952. Laboratories of hospitals and special campaigns are being established and reorganised. Although these laboratories will serve as

routine diagnostic laboratories, valuable material will be available in them for officers with a bent for research. Encouragement and guidance will be readily extended from the Central Research Institute.

Civil Medical Stores

THE re-organisation of the Civil Medical Stores is a matter of the utmost urgency. This institution is not functioning efficiently and this is due not only to the unsatisfactory methods used for stores management and accounting, but also to lack of proper accommodation.

The services of a WHO Consultant in Medical Stores Management were obtained in 1950 to examine the problem and after a two-year study of the present system of stores management and accounting, he has submitted his recommendations relating to the measures that should be adopted to place this service on a sound and effective basis.

It is, however, not possible to implement these recommendations to best advantage until the problem of accommodation has been solved. As observed by the Consultant himself " the buildings are extremely old and quite inadequate and unsuitable for present-day needs. Congestion in these offices is acute and it is physically impossible to inspect the work of a particular clerk without disturbing the work of at least 4 or 5 others. It will be quite impossible in the present offices to introduce a normal and orderly office routine. "

The buildings occupied by the Central Medical Stores at the Railway Yard, Maradana, are therefore being extended and it will be possible shortly to transfer to these premises that section of the Civil Medical Stores now housed at Francis Road.

Indigenous Medicine

THE Indigenous systems of Medicine practised in Ceylon are of very ancient origin. The most popular of these, Ayurveda, is a combination of the system known as " Desiyachikitsa " or " Sinhala Vedakama " which existed in Ceylon from pre-Vijaya times and the Ayurvedic System which came from North India. It flourished in Ceylon many centuries ago until with the successive foreign invasions which Ceylon was subjected to and the introduction of Western Medicine into the Island, the study of Ayurveda began to be seriously neglected and the practice of Ayurveda entered an era of steady decline.

Pursuant to a resolution of the Legislative Council in 1928 a Board of Indigenous Medicine for the control and development of indigenous medicine and for research in connection therewith was established. The responsibility for this work was to rest entirely with the Board, Government's part in the entire scheme being confined to the payment of an annual grant of Rs. 50,000 to the Board for 10 years. The Board established a College of Indigenous Medicine in 1929, a Pharmacy in 1932 and a Hospital in 1933.

A sub-Committee of the Executive Committee of Health was appointed in 1936 to review the policy in connection with the indigenous medicine. This sub-Committee strongly recommended the transfer of the College and its ancillary institutions to Government control observing that :

> "If the Government intends to satisfy the public demand for competent indigenous medical practitioners it should abandon the policy of non-interference and actively co-operate in making the present institution an efficient one".

This recommendation was approved by the Government and Ordinance No. 17 of 1941 was enacted which provided, *inter alia*, for the continuance of the College, Hospital, Pharmacy, dispensary and the Herbarium as Government Institutions, and for the registration of practitioners of Indigenous Medicine.

In 1946 a Commission was appointed consisting of a well-known Ayurvedic Physician from India and two laymen from Ceylon to examine the position as regards development of indigenous medicine. This Commission issued an exhaustive report (Sessional Paper XXIV of 1954) which disclosed the utter inadequacy of the measures so far adopted to revive and develop indigenous medicine. No less than 50 recommendations were made by the Commission none of which was implemented.

The Department of Indigenous Medicine consists of :

(*a*) College and Herbarium,

(*b*) Hospital, Out-Patients' Department, Pharmacy, and Medical Stores.

The College and Hospital buildings which were constructed over 20 years ago with the limited funds at the disposal of the Board of Indigenous Medicine at the time are very unsatisfactory. The College has no proper laboratories, classrooms or library for efficient instruction of students. The Hospital wards are ill-ventilated and have been condemned as unsatisfactory. The Out-Patients' Department which was intended to treat

about 400 patients does not possess facilities for treatment or accommodation for nearly 1,000 patients that seek treatment every day. The Pharmacy cannot cope with the demands of the patients and the methods of manufacture of medicines are antiquated. There is no Administration Block and no proper quarters for the staff. No research work has been conducted.

Provision has been made in this programme in a sum of Rs. 3,272,500 for improvements to the College of Indigenous Medicine, the construction of a Pharmacy and for the addition of an Indigenous Medical Research Section at the Medical Research Institute.

Homœopathy

AS a result of representations made both by practising Homœopathy in Ceylon and by members of the public seeking State recognition and assistance for the practice and development of Homœopathy in Ceylon, the Ministry took steps to appoint a Committee headed by a leading Homœopath from India, Dr. P. N. Banerjee to—

(1) examine and report on the extent to which Homœopathy is practised in this country and whether its practitioners in Ceylon possess the requisite knowledge of, and training in, Homœopathy ; and

(2) examine and report on the question of whether Homœopathy should be recognised by the State and, if so, what steps should be taken by the State

(*a*) to control the practice of Homœopathy,

(*b*) to provide facilities for training in Homœopathy, and

(*c*) regulate such training.

Although no specific provision is made in this programme for the development of Homœopathy, provision will be made during the course of the six years if it is found necessary to do so in the light of the recommendations made by the Committee of Inquiry. At present Government has formulated no policy in regard to this matter.

CHAPTER 24

WATER SUPPLIES AND OTHER LOCAL AUTHORITY INVESTMENTS

THE developmental activities of the Local Authorities are financed both from Central funds as well as local funds. Those activities financed from local funds have not, as stated in Part I, been included in the Six-Year Programme of Investment. Such investments are, in any case, small. The Programme includes only those activities of local bodies as are financed from Central funds. The fields of investment cover a number of spheres of activity such as Administration, Social Services and Economic projects. However, for convenience, investment through Local Authorities is treated separately in this chapter.

Historical

THE origins of Local Government in Ceylon can be traced to very early times. The compact rural communities, drawn together by their common interests in paddy cultivation and the control of water, had evolved institutions to meet their collective needs. The *Gamsabhawa* or Village Committee, a patriarchal system by which the affairs of the village were conducted by the natural leaders of the village, was such a typical institution.

This institution lasted through the Portuguese and Dutch occupations and flourished in the Kandyan Kingdom up to the rebellion of 1817-1818. After the proclamation of 1818, the *Gamsabhawa* ceased to have legal existence but villagers continued it for purposes connected with paddy cultivation. Commissioner Colebrooke was so impressed by it in 1829 that the Charter of 1833 expressly stipulated that disputes may be submitted to "the arbitration of certain assemblies of inhabitants of certain villages". Thereafter, the Government has been eager to rehabilitate this institution but when Police Courts and Courts of Requests were instituted in 1843 the *Gamsabhawa* had almost fallen into desuetude in this function.

In 1856, when the colonial Governor set out to resuscitate the Village Council he empowered the *Gamsabhawa* to revive ancient customs touching irrigation, "by obliging all to co-operate in preserving tanks and regulating the supply and distribution of water". The Village Council was re-established on a constitutional basis in 1871 by Ordinance 26 of

that year and was charged with the maintenance of law and order as well as the construction and maintenance of the various public utilities in the village. Every male inhabitant over the age of 21 years, unless disqualified by certain criminal convictions, had a right to be present and vote at the deliberations. A property qualification applied to the Committee Members. The operation of this institution was improved later by the legal amendments especially by those of 1889 and 1924, restoring local government in the villages to its rightful place.

The Urban District Councils which appeared in 1922 go back to the Small Towns Sanitary Ordinance of 1892 by which 110 small towns were placed under some 19 Sanitary Boards, dealing with sanitation, markets, roads, conservancy and lighting. By 1898 larger towns were placed under Local Boards—13 such boards being created. Nuwara Eliya had a Board of Improvement.

The Local Government Commission of 1916 made a review of the situation and a more defined local government policy, came into being. The necessity of a Central Authority for local government came to be universally admitted. In 1921 a Local Government Board was established.

Outside of the Municipal areas eleven Urban District Councils were established between 1922 and 1930 covering Chilaw, Dehiwala-Mt. Lavinia, Jaffna, Kalutara, Kurunegala, Matale, Matara, Moratuwa, Negombo, Panadura and Ratnapura. The remaining Local Boards with one exception, Minuwangoda, were converted into Urban District Councils from 1933, and in addition certain Sanitary Board areas became Urban District Council areas.

The Local Government Board held wide supervisory powers over Urban District Councils by way of examination and co-ordination of by-laws, accounts and the execution of duties. After the Donoughmore Constitution of 1931 a Local Government Department was created as the executive instrument of the Executive Committee of Local Administration.

The earliest trace of Municipal Government was when in 1820 Colombo had a local assessment for the repair and lighting of streets. But the Municipal Councils Ordinance of 1865 may be taken as the starting point after which Municipal Elections were first held in Colombo in 1868. The Privileges were soon extended to Galle and Kandy. Constitutional reforms followed in 1910 and 1935.

The Housing Ordinance of 1915 has now been improved upon by action in the sphere of Town and Country Planning. A unified Local Government Service (1946) has added to the efficiency of service and the security of tenure of the employees who number over 7,000.

Today there are 7 Municipal Councils, and 36 Urban Councils. Town Councils are among the latest Local Government bodies to be set up. They occupy an intermediate position between Village Committees and Urban Councils and number 38. The Village Committees number 403.

Under the Gal Oya Development Act, No. 51 of 1949, the under-developed areas coming under the scheme are controlled by the Gal Oya Development Board. Three Village Committees were taken over by the Board. In addition seven Village Committees will give over their under-developed areas to the Board.

The Present

LOCAL Government activities are now in charge of a Ministry of Local Government. The subjects and functions assigned to this Ministry are those relating to Local Government, local elections, and the Local Government Service Commission. Economic development carried out under this Ministry relates to Water Supply, Sewerage Disposal, Surface Drainage, Special Areas Development, Slum Clearance, Housing, Village Works, Electricity Distribution, The Anuradhapura Preservation Scheme, Miscellaneous Capital Works and Sea Erosion.

The Local Authorities carrying out these development activities are more under the eyes of the rate-payers than those of Central Government officials. The decision as to the need for some service like water supply or electricity for an area has to be taken by the Local Authorities. The Commissioner of Local Government acts in an advisory or supervisory capacity. The initiative lies with the local body. However, assistance from the centre is both necessary and available to the Local Authorities. This assistance is legal, technical and financial. Some of the more important services (of water sewerage, lighting, &c.) require the employment of skilled technical personnel which is often beyond the financial capacity of the Local Authorities to engage. Although the Ministry of Local Government has itself no specialised technical staff, it secures the assistance of other Ministries that possess such staff on particular local schemes. The Electricity Department of the Ministry of Transport and Works gives advice on Electricity Schemes, and the Sanitary Engineer's Department of the Ministry of Health, advises on sewerage and drainage undertakings. The Government Town Planner of the Housing Ministry advises on Town and Regional Planning, and on Slum Clearance and above all the Water Works Department of the Ministry of Transport and Works plays a major role in regard to Water Supply Schemes.

On the financial side the costs of maintenance of works and services are ordinarily charged to the local revenues. The cost of providing major services is borne either wholly or partly by the Central Government, which makes grants on an agreed basis and the local contribution is initially provided by loan funds. The financial relationships are currently under review.

Regarding roads it may be mentioned that the Public Works Department maintains a little over 11,000 miles of roads, the Village Committees about 8,000 miles and Urban areas about 800 miles. Village Committees are given grants for major improvements on roads in their charge. Over 20 miles of trunk roads are maintained by the Colombo Municipality but the cost is borne by the Central Government.

The Programme of Investment

INVESTMENT under the Ministry of Local Government during the six-year period will amount roughly to Rs. 160 million of which Rs. 100 million will be on commitments in hand and Rs. 60 million on new projects. In the paragraphs that follow the main fields of investment will be discussed.

WATER SUPPLIES

Although Ceylon has a heavy rainfall it is not evenly distributed throughout the year and owing to the geographical and geological formation, most of the water flows rapidly down the rivers to the sea. The problem of supplying pipe-borne water to densely populated areas is therefore a difficult one, requiring a planned control and utilization of our water resources. The supply of pure and wholesome water for drinking and domestic purposes is of prime importance in preventing the spread of water-borne diseases like dysentery, typhoid, cholera, diarrhoea, enteric fever, hookworm, &c. The need had been recognized as early as the eighties of the last century. The Island's oldest water supply scheme is that of Kandy which was completed in 1879. The supply to Colombo from Labugama was completed ten years later in 1889. Galle (1892), Diyatalawa (1900) and Nuwara Eliya (1902), were among the earliest towns to have their own supplies.

The provision of pipe-borne water in the early days was restricted to the major towns which had convenient gravity sources near at hand. All other areas had to depend on wells until the towns of Mannar and Batticaloa were supplied with the first pumping schemes in 1914 and 1916 respectively.

The construction of reservoirs at altitudes from which water will gravitate to towns involves considerable expenditure on acquisition and pipelines, even where suitable catchments capable of yielding the required quantity of water can be found. Pumping schemes are therefore generally more economical even after taking into consideration the heavier running costs, particularly in view of the fact that all piping (which is significant in gravity schemes) has to be imported and this involves foreign exchange.

The first acknowledgment of Government's desire to tackle the supply of water as a national problem was the allocation of a sum of Rs. 7,500,000 from the Loan Scheme of 1937. There were, however, several factors which could not be overcome with the result that during a period of ten years the total expenditure was only about Rs. 1 million. Better progress has since been made with the creation of the Waterworks Sub-Department of the Public Works Department, in 1947, and the commencement of proper investigations in 52 towns and 106 villages included in the priority list of the Ministry of Local Government.

The difficulties created by the shortages of engineers, draughtsmen, &c., have in some measure been overcome by utilizing the services of local and foreign firms for the design of some of the major schemes. One of the major works now under construction is the additional trunk main from Kalatuwawa to Colombo and the service reservoir at Dehiwala at a cost of Rs. 23,750,000.

The Department has prepared plans and estimates and is ready to commence work on several schemes, the estimated total cost of which is over Rs. 85 million. This includes the supply to towns in the neighbourhood and south of Colombo. A certain portion of the expenditure on water supply schemes has to be borne by the Local Authorities concerned. The inability to meet their share has held up some schemes for which the designs are ready and the Government's contribution is forthcoming. However, about half the investments in Local Government during the six-year period goes on Water Supply Schemes.

The major water supply schemes are in respect of Municipal, Urban and the larger Town Council areas. The Central Government meets the full cost of the head works in new schemes and 50 per cent. of the cost of the head works in augmentation schemes. The entire cost of distribution has to be met by the Local Authority. During the six-year period the following schemes are to be undertaken :—

(1) The first scheme concerns the Urban areas that can be served by a pumping scheme from the Kelani Ganga at Ambatale, viz., Kotte-Nugegoda, Kolonnawa, Dehiwala-Mount Lavinia, Moratuwa and Panadura. The

Local Authorities concerned have asked the Central Government to arrange for the construction, including distribution of the scheme, and have agreed to pay back from loan funds their proportionate costs. As there will be, for some years, an adequate supply of surplus water from the Kalatuwawa Reservoir to supply these towns, it is proposed, during this period, to utilize that surplus water for supply to these towns, and to defer the pumping arrangements from the Kelani Ganga.

(2) The Negombo Municipality and the Kochchikade Town Council will come under one supply scheme from the Maha Oya.

(3) The other towns that will receive consideration during the period are Matara, Jaffna, Kandy, Puttalam, Galle, Weligama and Ratnapura.

(4) Kalatuwawa Head Works and Pipe Line : This scheme is likely to be completed by the end of 1956 and under it Colombo will receive an additional supply of 20 million gallons per day. The Council anticipates a safe surplus of 7 million gallons per day which will diminish each year but will not fall below 4 million gallons per day at any time during the six-year period. As that amount is sufficient for the towns south of Colombo up to and including Panadura, the Municipality has agreed to make that surplus available to the Central Government for supply to those towns.

SUPPLY OF DRINKING WATER THROUGH MINOR SCHEMES

Provision for this service is made under two heads, viz. :

(*a*) *Village Wells.* Grants are made to Village Committees for the improvements of existing wells, for the construction of new wells in areas where water supply, specially during the drought months, is scanty and endangers public health. The average cost of a well is in the neighbourhood of Rs. 500. On that basis this vote permits the construction of 1,000 wells each year.

(*b*) *Rural Water Schemes.* These schemes are for pipe-borne water supplies in Village Committee areas and in the smaller Town Council areas, and are carried out ordinarily by private contractors on designs and estimates prepared by the Waterworks Engineer of the Department of the Commissioner of Local Government. The Waterworks Engineer was recruited in May, 1953. Two such schemes have already been completed while three others are under construction. A further 12 schemes are at various preliminary stages while, in the case of twenty-nine others further investigation is to be undertaken. Eighteen other

schemes are to be inspected with a view to commencing the preliminary investigations necessary before undertaking the actual work. A list of such schemes is attached as an Appendix I to this chapter.

SEWERAGE SCHEMES

Sewerage schemes are an essential part of environmental sanitation so as to eliminate pollution of soil and water and the resulting infections. The schemes prepared are in respect of Dehiwala-Mount Lavinia, Kolonnawa, Galle, Kandy, Jaffna and Anuradhapura and add up to a total cost of Rs. 90 million. They, however, have to follow up the schemes for water supply in these areas and will be taken up as funds permit. The schemes for Dehiwala-Mount Lavinia and for Kolonnawa which are considered to be of high priority will by themselves cost Rs. 22½ million.

DRAINAGE SCHEMES

These are not sewerage schemes but surface water drainage schemes. Priority has been given under this item to areas where the incidence of Filariasis and water-borne diseases are reported to be high. Work has already commenced in the Kolonnawa and Dehiwala-Mount Lavinia areas ; the other towns where work will be commenced during the period are Matara, Panadura, Moratuwa and Wattala-Mabole. Government bears two-thirds of the cost of the schemes ; the balance one-third is met by the Local Authority.

SPECIAL AREAS (COLOMBO) DEVELOPMENT BOARD

This Board was set up under Ordinance No. 40 of 1947, to enable the compulsory acquisition and re-development of areas in Colombo consisting wholly or partly of lands on which demolition operations have been carried out with the emergency powers during the second World War. The main work of the Board is to acquire the areas so demolished and to develop the lands in the interests of public health or safety or of the amenities in the neighbourhood. The bulk of the expenditure is on acquisition and on the laying out of roads. This work is nearing completion and is likely to be over before the close of the financial year 1956-57. The law provides for the Municipality to take over these special areas and to continue the work of the Board when that Board ceases to function.

SLUM CLEARANCE

These are housing schemes with the primary object of improving housing conditions in the congested areas by demolishing a certain number of insanitary houses and providing alternative accommodation for the families

so dehoused and a few others who are similarly placed. Government bears two-thirds of the cost of these schemes and the Local Authorities the balance one-third. This vote will largely be utilized for slum improvement schemes undertaken by the Board of Improvement Commissioners Colombo on the lines of the Pilot Slum Improvement Scheme undertaken by the Board.

HOUSING

These schemes are Working Class Housing Schemes undertaken with the approval of the Ministry by the local bodies. The Central Government bears the full cost of such schemes in Village Committee areas ; three-fourths of the cost in Town Council areas ; two-thirds of the cost in Urban Council areas and half of the cost in Municipal areas. As the Housing Ministry will be assisting this class of persons to find their own houses provision is made only for the first two years under the Programme and preference will be given during that period to schemes for the housing of workmen employed by the Local Authorities.

VILLAGE WORKS

Village Committees, especially those in the dry zones, have very poor revenue which is quite inadequate after meeting recurrent expenditure on establishment and maintenance, to initiate improvements to existing services or to provide new amenities. Grants are accordingly given for urgent improvements to roads (culverts and bridges) for the construction of Village Committee Offices and similar works.

ELECTRICITY DISTRIBUTION

Local Authorities get no grants for electricity services, and depend on loan monies. As the demand for such loans is very heavy, and is beyond the present capacity of the Local Loans and Development Fund, priority is given to areas which can be served by hydrel current during the period.

ANURADHAPURA PRESERVATION SCHEME

With regard to the Anuradhapura Preservation Scheme, the money provision under the Programme is for the completion of Stage I. The entire cost of the Scheme is to be met by the Central Government.

Anuradhapura was the capital of Lanka from the time of King Pandukhabaya (4th Century B.C.) up till the beginning of the 11th Century. The

city contains some of the most revered national monuments and places of Buddhist Worship. Some of the ruins of the city have already been restored and the present move is to preserve the ancient city and promote further archæological exploration and restoration, by shifting the commercial and administrative interests and institutions outside the city proper.

The new town is planned on a site of approximately 3,000 acres, most of which belong to the State. It provides for a population of 15,000. Special areas are set apart in the plan for commercial, residential and industrial purposes and sites are reserved for Government offices, a new hospital, a Government Central school and other educational institutions and public buildings. Large tracts of land containing interesting natural features have been reserved for the layout of parks and recreation grounds and the most careful thought has been given to the siting of roads. The needs of the thousands of pilgrims who visit the sacred city during festive seasons have not been overlooked in the Scheme, and special areas along the banks of the Malwatu-Oya have been reserved for their use as camping grounds.

All the amenities necessary for the growth of a modern town are provided in the New Anuradhapura. A pipe-borne supply of drinking water from the Nuwarawewa and electric lighting, are some of the services included in the scheme. The scheme also provides for the orderly development of land alienated for private purposes.

The World War prevented action being taken on the Anuradhapura Preservation Scheme. It was not until 1947, that work on the new town scheme was commenced. Financial provision for this work appeared for the first time in the 1946/47 Estimates under Loan Fund Expenditure of the Ministry of Health and Local Government. The Town and Country Planning Department was assigned the subject of the planning and development of the new town of Anuradhapura. The arrangement was that the funds for the Government buildings in the new town should be provided in the estimates of the Ministries concerned and that the Public Works Department would be responsible for the erection of these buildings and for the construction of the main roads and the water supply scheme for which funds would be allocated by the Ministry of Health and Local Government.

In 1953, the expenditure on the new town scheme was greatly curtailed owing to the difficult financial situation of the country and the work on the scheme had to be slowed down. The public of Anuradhapura were seriously inconvenienced by the restriction of building activities in the new town and there was much agitation and concern about the delay in the provision of facilities in the new town.

At the end of 1954, the following work had been done in the new town :—

(a) About 600 acres of land had been opened up for development and all allotments under the Land Development Ordinance and private lands in the area acquired ;

(b) Three miles of roads and three bridges completed ;

(c) The Central School, the Meteorological Station and 197 quarters for a number of Government servants constructed ;

(d) Sites for Government, Urban Council and other public institutions approved and allocated. Construction of the first stage of the main Secretariat had commenced ;

(e) Work on the first stage of the pine-borne water supply scheme from the Nuwarawewa which lies on the boundary of the new town, had commenced ;

(f) Electricity mains had been laid to the Central School ;

(g) The Government Agent has held a land kachcheri to release the residential and commercial lots in Stage I, for development. A layout plan showing the blocking of Stage II had also been prepared to speed up alienation for development by the private sector.

The position was by no means satisfactory and in October, 1954, Government decided that all the funds necessary for the completion of the works that were essential to enable the Government and commercial activities to be removed to the new town should be provided without any further delay. On March 18, 1955, Parliament approved a Supplementary Estimate submitted by the Minister of Local Government, to enable the work on the new town to be speeded up and at the same time agreed to the provision in the next year's Estimates of the balance necessary to complete the transfer of the Government and the principal commercial activities of the old town to the new.

The intention of Government is that Stage I of the scheme should be completed in 1956. To achieve that object provision has been made for the completion of the pipe-borne water supply scheme and the new Secretariat building (designed to accommodate most of the existing Government offices in the old town) which are now under construction, the construction of the remaining access roads, the erection of a new hospital, police station, court house, post office, public market and shops and the provision of electric lighting. Provision has also been made to acquire the principal bazaar area in the vicinity of the Sacred Bo Tree in the old town and to demolish the

existing buildings so that pilgrims could worship at the ancient shrine in an atmosphere of peace and dignity and the Archæological Department could carry out its work of preservation unhampered.

The Ministry of Local Government is in charge of the Scheme. The Public Works Department constructs the principal Government buildings, the main roads and the water supply scheme, while the Department of Government Electrical Undertakings carries out the electric supply scheme. The Government Agent, North Central Province, will deal with the acquisition of land and alienation of sites for development in the new town in accordance with Government policy. The Special Commissioner, Anuradhapura, will construct a resthouse in the new town and will assist in the maintenance of the developed area. These activities will be co-ordinated by the Government Town Planner who will continue to administer the Scheme as Chief Administrative Officer, under the general direction and control of the Ministry of Local Government.

Rs. 8,880,000 is to be spent during the six-year period on the scheme.

MISCELLANEOUS CAPITAL WORKS

Local bodies are becoming increasingly aware of the various facilities that Local Authorities can and should provide for the benefit of their ratepayers. Their finances are the limiting factor, and most local bodies depend on loan monies for services such as Public Markets, Libraries, Maternity Homes, Clinics, Play Grounds etc. In view, however, of the heavy demands on the Local Loans and Development Fund for more pressing and essential amenities like electricity and water, the programme for capital works of this nature is small in dimensions.

SEA EROSION

Erosion of our coasts is not a new phenomenon. Government has, from time to time, adopted *ad hoc* measures in the affected areas like Negombo, Hikkaduwa and Kalpitiya to arrest this erosion, but experience has shown that those measures were of little permanent value. The incidence of erosion has recently increased and has become a serious threat to our coast line, particularly on the highly developed western shore. A firm of consultants from Holland, which has had considerable experience in measures to arrest sea erosion, has made a preliminary survey of the problem here. It is proposed to obtain the services of that firm to carry out, in consultation with the technical officers of the Government, permanent measures at Negombo and at Hikkaduwa and to plan out a long-term campaign to combat this menace in other parts of our coastline.

APPENDIX I (CHAPTER 24)

RURAL WATER SCHEMES

(I) *Schemes completed :*

Galaha, Panadura, Talpiti-Baddas V. C. Housing Scheme.

(II) *Schemes under construction :*

Vankalai, Ankumbura, Ettampitiya.

(III) *Schemes designed and awaiting tender :*

Wellawaya, Aluvihara, Delft, Kataragama, Kodikamam.

(IV) *Schemes at Design Stage :*

Talawa, Koslanda, Weriyapola, Teldeniya.

(V) *Schemes on which investigations have been completed :*

Alutnuwara, Kalutara Housing Scheme, Kadugannawa Housing Scheme.

(VI) *Schemes where preliminary inspections have been made and are under further investigation :*

Kekirawa, Bibile, Ellepola, 3 Villages in Karavaku North V. C., Elpitiya, Karainagar, Dambulla, Godakawela, Sammanturai, Kalpitiya, Gurutalawa, Pottuvil, Kinniya, Hapugastalawa and Doruwadeniya, Kaddaively, Nivitigala, Badallkumbura, Kotapola, Kandegedera, Kalugalpitiya, Kongahamulla, Pannala, Tibbotugoda, Ragalla, Kantalai (Colonists), Kolonnawa, Nawalapitiya (Housing Scheme), Minuwangoda, Kadugannawa.

(VII) *Schemes awaiting inspection :*

Rakwana, 3 Villages in Deniyaya V. C., Matale-Udasiyapattu, Udugampaha, Koholanwela, Landegama-Welimada, Welimada, Hettipola, Vatharawattai, Galboda-Korale, Sampaltivul, Ukuwela, Akurana, Alakolange, Panwilatenne, Maho Bazaar, Kahawatte, Wellandura.

CHAPTER 25

SPECIALIZED SOCIAL SERVICES

SOCIAL services in general include all measures designed to secure the well-being and welfare of all citizens. The social welfare programme of Government directed to the achievement of the above end may be classified as follows :—

(1) Constructive Community Services which include Education, Public Health and Medical Services, the national system of Employment Exchanges and the arrangements for looking after the welfare of the deaf and blind and of the physically and mentally defective members of the community. These services are essentially constructive as their purpose is to improve individual fitness and the social adaptation of the person with whom they deal.

(2) Subsidized consumption which includes free milk distribution and subsidized essential foods which cannot be obtained by many citizens with low incomes owing to their high cost at ordinary market prices. This will also include the provision of sanitary and properly equipped homes for the people.

(3) Social assistance services which provide assistance to the destitute and the needy in the form of monthly charitable allowances (public assistance), the relief of widespread distress, and financial assistance to T. B. patients and their dependants. These services are financed wholly out of public funds, the granting of assistance being conditioned by the financial circumstances of the applicant. This is popularly known as the "Means Test".

(4) Social Insurance Schemes, which generally include unemployment, health and workmen's compensation insurance, may be regarded as a system of compulsory self-help organized by the State and subsidized by the tax-payer and by employers of labour.

There are separate Ministries for Health, Education, Labour, Housing and Social Services. The Ministry of Home Affairs has charge of the welfare of the rural population and the upliftment of certain backward

classes. The functions of the Ministry of Social Services however cover the unclassified social services which do not come within the purview of specialised departments and include the following :—

I. Public assistance.
II. Relief of widespread distress.
III. Care of the aged.
IV. Care of the deaf and blind.
V. Care and rehabilitation of vagrants.
VI. Services for children.
VII. Services for orthopaedically handicapped persons.
VIII. Financial assistance to T. B. patients and their dependants.
IX. Assistance to voluntary agencies engaged in social welfare work (institutional and outdoor relief).
X. Resettlement of flood victims.
XI. Workmen's compensation.

The development proposals of the specialized Ministries, such as Health and Education, are discussed separately in individual chapters.

The present policy of Government with regard to the unclassified social services is to implement the recommendations of the Social Services Commission (Sessional Paper No. VII of 1947) within the limits of its current national income and to the extent it can bear distribution without causing a strain on the national economy. The last twenty years has seen the development of far-reaching social changes in the country. Until then the people of Ceylon relied for the greater part on private alms and public charity, Government grants and free medical assistance as a cushion against economic and social distress. With the attainment of independence, Government has taken an increasing interest in social welfare and current social services work reflects State participation in both leadership and finance of all welfare programmes. Even though the sphere of State action has greatly expanded in recent years, Government in pursuance of its policy of encouraging voluntary effort has given liberal grants to voluntary social welfare organizations, to enable them to carry out their programmes effectively. The existence of voluntary agencies is an index to a country's social progress and their importance is measured not only by the funds collected and distributed and the voluntary service undertaken but also by the educative value which emphasises the social obligations of the citizens and appeals to the charity of the wealthier classes to ameliorate the conditions of their less fortunate fellows. This obligation in Ceylon springs

from ancient tradition which is supported and maintained by the precepts of all the religions in the Island. Although voluntary agencies continue to perform a very necessary and useful service, the paucity of funds generally makes their efforts inadequate in relation to the large number seeking assistance. Government has done its part to foster and support voluntary public effort within the financial resources available.

Almost all social services are not directly productive although some of them contribute to increased production by ensuring a healthy population. The slow growth of an economy may be due partly to the poor quality of the working population. High labour productivity can be had only if the gainfully employed are healthy and literate. Investment in men can pay high dividends. Expenditure on education and on some of the health services can be justified on these grounds. But a large section of those who get the benefit of social service such as the aged, widows and physically incapacitated are non-producers and no economic return can be expected by expenditure on their welfare.

These social services are largely redistributive in character. A part of the flow of income is diverted from the more favoured to certain depressed classes. The amount that should be so diverted is determined by the total stream of income. If the economy is prosperous and highly developed, a larger share of the national income can be used for redistributive purposes than if the economy is under-developed. A poor country cannot afford the same benefits and on the same scale as a more prosperous community. The standard of living in a community is low because the goods and services it enjoys is inadequate in relation to the population. The output of goods and services is to a large extent a function of the available capital equipment. Increasing the capital equipment leads to an enhanced flow of output. In an under-developed country the first priority therefore is investment in directly productive spheres. As the economy develops, the social services can be extended, both in scope and benefits. Given this overriding consideration such an economy should choose those social services which confer the maximum benefit with the minimum public expenditure. The available money must not be dissipated haphazardly but only on certain selected schemes. The country cannot afford a complete system of social security. All it can provide is a limited range of assistance to specific classes of unfortunate people.

Nevertheless the good of the community cannot be said to be attained if a large section of it suffers from want and misery. Social justice demands that those unable to fend for themselves should be succoured by the community. Ceylon has, therefore, with her limited resources, achieved a high degree of social security.

STATE HOMES FOR THE AGED AND INFIRM

The care of aged persons has so far not been an irksome burden on the family, because of the high sense of family obligation that prevails here. The family provides for all its members whether they contribute to the common pool or not. Children maintain not only their aged parents but sometimes their uncles and aunts and even remote relatives.

With the disintergration of the old ties of kinship that has become evident now, the necessity has arisen for the provision of various types of social services to cater to a variety of needs. One such service has been devoted to the care of the aged people.

The problem of the aged takes three forms, viz., economic, domestic and social. The economic aspect of the problem is evident from the phenomenal rise in the number of old people who are in receipt of Public Assistance from Government and the Poor Law Authorities. These people, while being unable to contribute anything to the common pool of family income, have traditionally depended on their children, thus depressing further their already low standard of life. They were generally destitute or would have fallen into destitution if Public Assistance had not been granted to them. In a large number of cases, Public Assistance grants have lightened the burdens of their supporting children to some degree.

The second aspect of this problem is of a domestic nature. Some of the younger generation carry disproportionately heavy burdens in supporting their aged relatives. Except in a few cases where they can afford to employ domestic help, the care of the aged parents has fallen on one or another of the children, usually a daughter. The demands of aged people on the time and energy of the young are normally heavy. If the aged people are infirm as well, they become positively burdensome. There are numerous instances of young mothers, who in addition to looking after their own children, cooking the family meals and going out to work to supplement the meagre earnings of their husbands, have also to care for their parents.

Social amenities for the welfare of the old people as known in the West are absent in Ceylon. There are no recreational facilities, no special clinics, clubs or associations for the aged.

Voluntary Agencies have endeavoured to find a solution to the problems of the aged by providing indoor relief to aged persons in Homes for the Aged. These Homes are mainly run in urban areas where there are persons

of wealth and leisure who are in a position to undertake a service of this type. Apart from collections from private sources, these agencies depend for assistance on grants largely from Government and in a few instances from Local Authorities. There are in all twenty voluntary Homes for the Aged in the Island receiving assistance from Government. Two more Homes are proposed to be opened shortly by voluntary effort in the Southern Province.

Government recognises the value of voluntary service in this field and the need for a greater and extended service of this nature. Government is also aware that the reasons for the limitations that Voluntary Agencies suffer under are largely due to the lack of funds. It appreciates the selfless devotion and the unflagging enthusiasm of many voluntary workers for the cause they serve. Government therefore assists voluntary effort by paying an annual maintenance grant to Voluntary Homes as well as by providing non-recurrent grants for the purpose of extending the scope of voluntary service in this sphere.

The services provided by Voluntary Agencies for aged people, however, have been found to be inadequate in relation to the demand. It has therefore been necessary for Government to actively enter the field of institutional relief to supplement voluntary effort. Accordingly, the Government has already established State Homes for the Aged at Koggala, Anuradhapura and Jaffna, in which accommodation for about 720 aged people is available. A fourth State Home at Mirigama with accommodation for 240 inmates of both sexes is nearing completion and is expected to start functioning by the end of 1955. The policy of Government is to establish State Homes in districts where sufficient accommodation has not been provided through voluntary effort and expenditure would total 7 million if a State Home has to be provided in each province. The running expenses of each Home will be about Rs. 187,000 per year. It is hoped that, with voluntary effort, providing their own Homes, aged people would find adequate institutional care in this country. It would then be possible to prevent aged people from occupying bed-space in hospitals which is much more urgently needed by acute cases actually needing medical attention and nursing care.

It should be emphasised that Government does not intend to stifle voluntary effort in the field of the care of the aged. On the contrary, Government desires to encourage and assist such effort. The care of the aged is a field which provides ample scope for voluntary workers, and the co-operation of Government, Local Authorities and Voluntary Agencies is essential.

SHELTERED WORKSHOPS FOR THE DEAF AND BLIND

The desire of the Government is to restore the deaf and blind from a dependent and negative existence to one of productive usefulness and happiness through specialised voluntary effort suitably supplemented with State Aid.

The Ceylon School for the Deaf and Blind, has developed from a pioneer school established in 1912, into a fully grown institution providing suitable primary education, vocational training and after-care of its home-workers.

The State, on the other hand, has accepted increasing responsibility for the care and welfare of the adult deaf and blind by the payment of grants and the supervision of the after-care facilities provided by the Ceylon School for the Deaf and Blind. In 1952 the services of Sir Clutha Mackenzie, Expert on Blind Welfare, was obtained through the U. N. to advise the Government and interested voluntary organizations on their rehabilitation programmes for the deaf and blind. An annual grant of Rs. 125,000, now increased to about Rs. 150,000, is being paid to the Ceylon School for the Deaf and Blind for its adult vocational training and home-workers welfare schemes. A building scheme for sheltered workshops for the deaf and blind has been started at Seeduwa at a cost of Rs. 636,200. It is expected to complete this building programme in 1955-56. When the whole scheme is completed it will be possible to accommodate in occupational training 160 deaf and blind persons and thus enable them to take their rightful place as useful members of society.

HOUSE OF DETENTION AND HOME FOR VAGRANTS

Vagrants in any country are a special problem. They are often a source of perpetual annoyance to the public, a menace to the public health, and a burden to the State.

In Ceylon attention on the problem of vagrancy came to be focussed in the early part of the present century on account of large numbers of displaced and disabled Indian labour drifting into vagrancy. Since then the indigenous population has helped to swell the number of vagrants to noticeable proportions.

Action taken by the State to deal with the vagrant problem had two main objectives :—(i) to rid the public of the nuisance of vagrants by clearing them from the streets ; and (ii) to rehabilitate them. With this end in view, the House of Detention and the Home for Vagrants were

established in 1913 and 1914 respectively. At present the House of Detention is run directly by the Government and the Home for Vagrants is managed by the Salvation Army on behalf of the Government, which meets the expenses in full.

The following statistics indicate the present position regarding the number of inmates in the two institutions :—

	House of Detention				*Home for Vagrants*			
	Men	*Women*	*Children*	*Total*	*Men*	*Women*	*Children*	*Total*
No. of inmates on January 1, 1954	14	48	1	63	79	62	Nil	141
No. of inmates on December 31, 1954.. ..	13	40	Nil	53	53	48	Nil	101
Number re-habilitated	4	14	3	21	13	18	Nil	31

The House of Detention is a reception centre and a clearing house for vagrants convicted and remanded by courts under the Vagrants Ordinance or the House of Detention Ordinance. Where possible, placements are obtained outside for vagrants detained in the House of Detention, but those who cannot be so resettled within a reasonable period are sent to the Home for Vagrants which provides long-term accommodation and re-habilitation.

At present these institutions are housed in temporary buildings which had been originally constructed for the housing of flood refugees. The Government has therefore decided to construct permanent buildings for the two institutions with accommodation for an average of 300 inmates and a staff of 35. The site provisionally selected for the purpose is the land on which the vacated R. A. F. buildings stand at Gangodawila.

The project will cost Rs. 1,410,000, and is expected to be completed within a period of three years.

CHAPTER 26

LABOUR SERVICES

ONE of the primary objectives of the Government is to improve the standard of living of the worker and to promote his welfare to enable him to develop his personality to the fullest extent to the benefit of both himself and the community. The Labour Ministry and the Department of Labour are entrusted with the responsibility of giving effect to this objective. The tempo and pace of improvement, however, are conditioned by a number of factors. But, subject to these, the intention is to improve the worker's living standards and working conditions as fast as possible.

A substantial advance towards the achievement of this objective has been made. This involved an attempt both to eliminate those deficiencies under which the Ceylon worker laboured as well as to improve his economic and social position. The main objective was to give him an adequate minimum wage, weekly and annual holidays and satisfactory working conditions.

Legislation regarding Minimum Wages and Conditions of Employment

THE WAGES BOARDS ORDINANCE

Under the Wages Boards Ordinance the Labour Ministry has set up 16 wages boards which cover 17 trades affecting 85 per cent. of the industrial and agricultural workers in this country. These wages boards which include representatives of both employers and workers, provide a democratic machinery for fixing satisfactory basic conditions, e.g., minimum wages, hours of work and weekly and annual holidays for the workers.

Studies into the working conditions prevailing in each trade were made before each wages board was set up, and the Labour Department is prepared to carry out further studies through its Statistical Division in order to extend the benefits of the Ordinance to any other categories of workers who may require protection. There are still a section of workers whose wages and other terms of employment are unregulated and it is the intention to extend the benefits of the Wages Boards system to those workers who can appropriately be included within its scope.

THE SHOP AND OFFICE EMPLOYEES (REGULATION OF EMPLOYMENT AND REMUNERATION) ACT, No. 19 OF 1954

This Act which replaced the Shops Ordinance, No. 66 of 1938, gives benefits both to shop and mercantile employees and provides for tribunals

to fix the salaries of shop and office employees. Whereas the Shops Ordinance was in fact enforced only in the Municipal and Urban areas, it is possible to extend the benefits of the Shop and Office Employees Act to other areas as well. This new Act may be said to establish a landmark in the history of minimum wage legislation in Ceylon in so far as its benefits are sought to be extended to shops and establishments with a view to regulating and improving the working conditions of "white collar" workers in addition to those of shop assistants.

THE MATERNITY BENEFITS ORDINANCE

This Ordinance applies to female workers employed in shops, mines, estates and factories and, briefly entitles them to protection for 2 weeks before and 4 weeks after confinement.

The work of enforcement of this Ordinance is done in the course of work under the main Ordinances referred to in the preceding paragraphs ; hence no special additional staff is necessary. The reference to this Ordinance is, however, made here in order to emphasise that expansion of enforcement of those main Ordinances would bring in its wake the extension of the practical enforcement of the Maternity Benefits Ordinance as well.

THE FACTORIES ORDINANCE

The Factories Ordinance is a comprehensive piece of legislation dealing with the safety, health and welfare of factory workers. It applies to all factories and in addition certain specific provisions also apply to building operations, works of engineering construction, docks, wharves, quays, warehouses and ships. Approximately 3,000 factories are registered at present but probably more than double this number of factories are governed by the Ordinance. Steps to enforce the Ordinance in respect of all undertakings to which it applies will be posssible with an increase in the cadre of the Department of Labour.

Industrial Relations

IT is hardly necessary to emphasise that an important aspect of the work of the Labour Department is its work for the preservation of industrial peace so that production could go on with the least disturbance and with the minimum dislocation of the national economy. The work of the department at present in regard to industrial disputes is governed by the provisions of the Industrial Disputes Act, No. 43 of 1950. This Act provides for the prevention, investigation and settlement of industrial disputes and for matters connected therewith or incidental thereto. The provisions of

this Act are not yet being implemented in their entirety (for example, the Industrial Court envisaged in the Act has not yet been set up) but it is expected that full implementation will be made effective in the near future by suitable amendment of the law. One of the main results of the proposal would be an increase in the number of references made to compulsory arbitration. This would involve the setting up of the Industrial Court and a panel of arbitrators.

There is also at present some difficulties affecting the registration of Collective Agreements and their binding effect under the law ; but when, as is proposed, these difficulties are removed and the application of Collective Agreements extended under the Act to cover all employers and workers in the related trades, it is likely that more and more employers will seek to regulate their terms of employment by such Collective Agreement.

Employment Services

EMPLOYMENT EXCHANGES

It has been found in modern times that the efficient functioning of an employment service is essential for the development of the national economy with the least degree of "friction". It helps employers to select the workers they need and unemployed persons to seek suitable employment with the least delay. It is also an indispensable medium for collecting data on employment and unemployment, and such data could be invaluable as a basis for planning adult vocational training programmes for the supply of the skilled workers needed for the development of the economy of the country.

Some of the recommendations of the expert on Employment Exchanges who recently visited Ceylon under the aegis of the International Labour Organization have already been implemented as far as existing facilities allowed, but the following recommendations are yet to be implemented :—

(*a*) The establishment of a Headquarters Section to supervise and maintain the working efficiency of the Employment Exchanges ;

(*b*) A Higher Appointments Service to expand the scope of activities of the Employment Exchanges ; and

(*c*) A Youth Employment Service to cater to the special requirements of school-leavers.

It is also intended that the Higher Appointments Service will play an important part in helping the Government to implement its policy of Ceylonization so that Ceylonese may find more and more opportunities for employment.

VOCATIONAL TRAINING

The Report on Vocational Training made by another expert obtained though the International Labour Organization indicated that :

(*a*) the Department of the Ceylon Technical College should expand its activities to supplement the practical education given in junior and senior secondary schools, and

(*b*) the Department of Labour shall play a wider role in co-ordinating the training of young persons on the minimum standards of skill and efficiency desired.

Since this report, a Central Co-ordinating Committee on Apprenticeship has been set up and 6 Sub-Committees have already framed syllabi of training and lists of equipment for the training of skilled workers in the electrical engineering, motor engineering, wood-working, metal-working, building and printing trades. The reports of these Sub-Committees also contain recommendations for supplementary training and trade-testing at the Ceylon Technical College. It may be said that the work of the Labour Ministry is in keeping with main objectives of the Government in the field of technical education, namely, to give variety and intensity to technical education—variety so as to enable young persons to have broad field of choice in the earlier stages and intensity so as to give them regular and continuous instruction during the period of training on well-planned syllabi which include practical training at the workshop and supplementary instruction at a training school.

The work of Vocational Training also extends to the training of supervisors and this is being organized for the technical grades of Government Departments and for Private Industry through the promotion of Training Within Industry for Supervisors (TWI) under the auspices of an International Labour Organization Expert on T. W. I. who is at the moment working within the Ministry of Labour on a one-year mission.

RELIEF WORKS

The Unemployment Relief Works at present combine two features :

(*a*) the relief of the unemployed, and

(*b*) a certain measure of development through the conversion of swamps into sites suitable for housing schemes, ware-housing accommodation, garages, departmental workshops, playgrounds, &c.

The Six-Year Programme will contribute towards a substantial increase in employment in the economy. But the Programme is confined to the public sector and will not by itself suffice to provide full employment for the

entire workforce over the six-year period. A complementary measure of expansion in the private sector is also needed. The Government's programmes and policies are designed to stimulate such an expansion in the private sector. But it would be necessary to maintain schemes of this nature until a cumulative process of development gathers momentum.

Surveys and Research

LABOUR STATISTICS

The work of the Statistical Division of the Department of Labour at present consists of assisting in the collection and maintenance of the statistics arising out of the day to day administration of the Department, e.g., statistics of industrial disputes, trade unions, &c., and collection of statistics of employment, earnings and hours of work of workers engaged in trades for which wages boards have been set up. It is proposed that this service should be extended to enable the Department to have all branches of Labour statistics readily available. It is also proposed to carry out social surveys to study the impact of labour legislation, to ascertain the reasons for the difficulties experienced in the enforcement of labour legislation and to provide the necessary data for future action.

INDUSTRIAL HYGIENE

The function of this Division is to deal generally with occupational diseases, and health hazards in industries. The Labour Medical Officer advises the Department on the enforcement of the health and welfare provisions in the Shops and Offices Act, the Maternity Benefits Ordinance, &c. He also advises other Government departments which require his services. His chief function however is in the field of research in industrial hygiene but he has been handicapped in this by the lack of a laboratory, proper equipment and qualified assistants. Work in this field is new to Ceylon and considerable emphasis must be given to progress in this field as soon as the expense can be afforded. Provision has been made in the Programme for the establishment of a laboratory to enable the Labour Medical Officer to undertake research work.

Administration

THE importance of adequate and suitable office accommodation for the Department of Labour is accepted. Provision has, therefore, been made in the Programme for the construction of a new building for the Central Employment Exchange at Colombo. New buildings for the Department's offices at Colombo and the outstations are also envisaged.

C—Administration and Defence

CHAPTER 27

GENERAL ADMINISTRATION

THE successful implementation of the development programme calls for the co-operation of the entire community. This is especially true in an economically backward country where the process of development has been retarded. Within the community certain sections have naturally more vital roles to play than others. In this programme which is essentially a programme of the public sector, the smooth and efficient functioning of the administrative service is essential for its success.

The development proposals relating to the administration are mainly for additional buildings to house the Government Departments and also for increased quarters for Public Servants. The public service of the country expanded considerably after 1947 when new functions and duties had to be undertaken. Despite this, very few additional buildings whether for offices or quarters have been built. Many Departments, both in Colombo and the outstations, consequently have to work in overcrowded, ill-adapted buildings.

The Ministries have included in their investment proposals provision for office accommodation and quarters for the officers of the departments under them. Such proposals will be dealt with under their relevant headings. This chapter is devoted to those proposals for accommodation and quarters not elsewhere referred to and to other projects which can be regarded as falling within the ambit of the term " General Administration ".

Secretariats and Kachcheries

THE problem of accommodating Government offices in the outstations is as acute as it is in Colombo. Provincial and District Sub-offices of Government Departments are generally in separate premises. Some occupy temporary and semi-permanent buildings. Many of them are in rented buildings. In many places it is not possible to secure additional premises on rent, and even when available, the accommodation is not always suitable. These conditions cause inconvenience not only to the Departments but also to the general public who have dealings with Government Departments.

It is, therefore, proposed to erect suitable buildings as Secretariats and Kachcheries in Provincial and District centres in order to centralize as many Government offices as possible. The construction of buildings in the following stations is included in this building programme :—

(i) Jaffna
(ii) Anuradhapura
(iii) Mannar
(iv) Kandy
(v) Colombo
(vi) Polonnaruwa
(vii) Moneragala.

Home Ministry Secretariat

THE Ministry has been faced for several years with the problem of finding suitable accommodation for the offices of the Excise Commissioner, the Registrar-General, and the Government Analyst. The Excise Department is housed on McCallum Road in a semi-permanent building which has outlived its period of usefulness and officers working in it are undergoing much hardship. The Registrar-General is required by statute to preserve a large number of valuable records and documents which are constantly being added to. The space available in his present office in the Fort is totally inadequate and conditions of storage of the records do not enable him to discharge satisfactorily the statutory obligation of preserving the records. The establishment of a record repair workshop is also included in the Programme. The Government Analyst requires more laboratory accommodation to attend to his duties promptly and efficiently. The Colombo Kachcheri should be removed from the Pettah to more congenial surroundings. The offices of the Director of Rural Development and the Commissioner of Cottage Industries will also require more suitable accommodation. The investment programme makes provision for the construction of a Home Ministry Secretariat estimated to cost Rs. 3 million to house these and allied departments.

Divisional Revenue Officers—Offices and Quarters

UNDER the former Chief Headmen system, Government did not provide offices and quarters for the Chief Headmen. Since the replacement of these officers by the transferable Divisional Revenue Officers' Service, it has become necessary to provide an office and quarters in each division for the use of the Divisional Revenue Officer. There are 107 Divisional Revenue Officers' Divisions in the Island. The construction of offices and quarters in these divisions has been undertaken in stages commencing from 1946.

Twenty-five sets of offices and quarters have already been constructed and provision has been included in the Programme in a sum of Rs. 4,489,000 for the construction of a further 57 sets as follows :—

1954-55	..	..	.. 2 sets
1955-56	..	..	.. 5 „
1956-57	..	..	.. 11 „
1957-58	..	..	.. 18 „
1958-59	..	..	.. 11 „
1959-60	..	..	.. 10 „
			57 sets

The cost of each set is estimated at Rs. 78,000.

Government Press

EXTENSION TO THE GOVERNMENT PRESS INCLUDING SECURITY PRESS

It is proposed to equip the Government Press to be able to undertake all Government printing without having to farm out work to the Trade. With this end in view, extensions have been planned and new buildings are under construction. It is further proposed to carry out certain much-needed extensions to the present Fitters' Shop and the Confidential Branch. The latter is extremely congested and the space is very limited. The demand for printing in Sinhalese and Tamil has been steadily increasing. Sinhalese Linotype machines and Tamil Linotype and Monotype machines have already been obtained and recently the Press has been equipped with a Sinhalese Monotype Machine. It is also hoped to add another complete unit during the next financial year. It is anticipated that certain Rotary Machines which have been ordered will be received during the latter half of this year. Provision for annual renewal and replacement of machinery has also been made.

BINDERY EXTENSION AND IMPROVEMENTS TO WAREHOUSE

The bindery, which was built nearly 50 years ago to suit the circumstances then obtaining is quite inadequate for the present needs. Additional machinery and equipment have been installed from time to time and the working staff considerably increased. The existing warehouse too is not

large enough to accommodate the increased volume of printed material which now passes through it. A sum of Rs. 1,646,000 has been set apart for expenditure during the six year period for additions and improvements to the Government Press.

Headquarters for the Department of Immigration and Emigration

THE Department of Immigration and Emigration is at present in the building which was once the Headquarters of the Ceylon Planters' Rifle corps. The naval authorities have been urgently in need of further accommodation in order that a building programme, already mooted by them, might be put into execution. This building and its environs lie partly within the land allocated to the Navy for this purpose. The Department of Immigration will soon have to be given alternative accommodation. It has not been possible so far to find such accommodation, nor is there any reasonable anticipation of suitable accommodation being found in the near future. Rs. 565,000 has been allocated in the programme for the construction of a building to house the Department.

Government Film Unit

THE Government Film Unit is at present situated on rented premises at Velona, Moratuwa. The technical officers have found the site and buildings unsuitable. In addition to the inconvenience of being far away from the city there are the technical disadvantages occasioned by its proximity to the sea on one hand and to the main Colombo-Galle Road on the other.

The proposal is to construct and equip at Kirillapone new buildings on 5 acres of land allocated to the Department. The land at Kirillapone, being within the Municipal Limits of Colombo, can be provided with facilities not available at Moratuwa, and is from every point of view the most suitable site for the establishment of a Film Unit. Altogether Rs. 1,000,000 will be spent during the period for the new headquarters and the purchase of new equipment.

Overseas Missions

AT present Ceylon Missions have been established in the following countries :—

United Kingdom,
U. S. A.,
Burma,
Pakistan,
Italy,
India,
Australia,
Singapore,
Indonesia, and
Japan.

Two more Missions in France and Switzerland are to be established in the near future.

The difficulty of renting suitable buildings in foreign capitals to house our Embassies and provide quarters for our Heads of Mission and Ceylon-based staff has been felt very acutely. Heads of Mission, according to the terms of appointment, have to be provided with rent free accommodation in keeping with their status.

The Ceylon Government has already purchased properties for use as offices and residences for the Heads of Missions in London, Washington, Canberra, Rangoon and Djakarta. In India, Italy, Pakistan, Japan and Singapore the offices and residences are housed in rented buildings.

There is at present no intention to provide every one of the Overseas Missions with all the accommodation required. But a start is to be made in New Delhi, and the scheme is to be later extended to Karachi, Rome, Tokyo and other centres. In the six-year period Rs. 3,432,000 is to be utilized for the purchase of buildings under this scheme.

Quarters for Customs Officers

QUARTERS at Kankesanturai and Point Pedro are to be constructed for the minor employees attached to the Customs. It is proposed to construct 10 type plan quarters at Kankesanturai and 12 at Point Pedro for the use of Guards, Van Drivers, the Master and Launch Crew. Altogether Rs. 505,000 will be spent on them.

The existing building at Cliff House, which is situated at Mutwal, is to be demolished and two sets of eight flats each are to be constructed in its place for the officers of the Department. The total cost of this project is Rs. 471,000.

General Service Quarters

THERE is an acute shortage of Government quarters both in Colombo and in the outstations. In Colombo, for example, there are 279 quarters available but there are nearly 800 applicants for them. In the outstations too the number on the waiting list is quite out of proportion to the number of service quarters available.

This clamour for General Service Quarters is a post-war feature and is directly connected with the housing shortage. In addition to the programme for general housing referred to elsewhere, Government proposes to

construct General Service Quarters for its officers as indicated below. This programme will extend beyond the six year period. During the period, however, it is estimated that Rs. 5,331,000 will be spent on this Service.

Programme for the Provision of General Service Quarters

Station	*Grade of Quarters*				
	Grade 6	*Grade 5*	*Grade 4*	*Grade 3*	*Grade 1*
Kalutara	2	3	8	14	
Kandy		3	10	5	25
Matale			2	17	
Nuwara Eliya		5	2	5	
Matara			4	8	
Hambantota			4		
Jaffna			3	9	
Anuradhapura		10	15	30	25
Mannar			3	8	
Vavuniya			10	20	
Batticaloa		5	6	12	
Trincomalee			2	8	
Kurunegala	2	19	12	22	
Puttalam		2	6	6	
Polonnaruwa			5	15	15
Ratnapura		6	6	15	
Kegalla				4	
Badulla		9	16	26	
Galle		2	2	10	
Colombo		20		100	
Total	4	84	116	334	65

CHAPTER 28

LAW AND JUSTICE

THE economic welfare of a community consists of both the goods and the services available to it in any period. A balanced programme of development must ensure that the latter too, both quantitatively and qualitatively, keeps step with an expansion in the former. One of the most vital of these services is rendered by the judicial system which guarantees to the citizens their rights of liberty, life and property.

When Ceylon regained its independence, one of the cherished legacies that she inherited was a judicial system steeped in the high traditions of British justice, which administered the law in accordance with the highest principles of justice, equity and reason. The Government has fostered in every way the maintenance of these high ideals. During the short period of the country's independence, the administration of justice has won the esteem and confidence of all the people. The high reputation of the judiciary has not only been maintained but it has been enhanced.

The development and improvement in the judicial system cannot be measured in money terms. It is reflected, however, in a reduction in the prevalence of crime, in the speedy and equitable execution of justice and in the approval of the judicial process by the community. The last is really an outcome of the first two. Reduction in the prevalence of crime is the direct responsibility of the Police Department. Its programme to effect this will be dealt with elsewhere.

Some dissatisfaction has been felt by the public on account of the delays in the administration of justice. Much has already been done to remove such delays in our criminal courts. The conduct of non-summary proceedings in the Magistrates' Courts, has been considerably speeded up. The factors that tend to cause such delays have been carefully noted and examined and steps have been taken to eliminate such delays where ever possible. It is a general rule now to conclude such inquiries in the Magistrates' Courts within three months of the commission of the offence and the cases are brought to trial and concluded in the Supreme Court within six months.

It must be mentioned that Magistrates' Courts are hard-pressed to cope with the ever increasing work in their courts and the Magistrates and their court staffs are, in most cases, very hard-worked officers. The delays in the

disposal of criminal cases are also caused by pressure of work in other departments such as the Police Department and the Departments of the Government Analyst and the Attorney-General. It will not be possible to eliminate the Law's delays to the satisfaction of the public without an appreciable increase in the cadre of the judiciary, the courts and the other departments referred to. By the appointment of several Commissioners of Assize, the delays in the disposal of criminal cases in the Supreme Court have been considerably eliminated and more Puisne Judges have been able to devote their time to the disposal of appeal cases.

The Criminal Courts Commission

THE Criminal Courts Commission has made important and far-reaching recommendations for the amendment of the Criminal Procedure Code to make the administration of the criminal law more efficient and speedy. Legislation has now been drafted to give effect to these recommendations and it is hoped to introduce such legislation in the near future. The Commission also drew pointed attention to the menacing problem of juvenile crime and focussed public attention on this serious social problem and the pressing need to take immediate and effective action to prevent young offenders from becoming confirmed criminals.

On the recommendation of the Criminal Courts Commission two important statutes, *The Youthful Offenders Act* and *The Children and Young Persons (Amendment) Act* will be introduced in Parliament during the forthcoming sessions and will soon become a part of our law. The principal objects of this legislation may be summarised in the provisions of one of the sections in *The Children and Young Persons Act* as follows :—

> " Every court in dealing with a child or young person who is brought before it, either as being in need of care or protection or as an offender or otherwise, shall have regard to the welfare of the child or young person and shall in a proper case take steps for removing him from undesirable surroundings and for securing that proper provision is made for his education and training ".

With the assistance of investigations conducted by probation officers, the courts will carefully consider the circumstances, family life and environment of the offender or person in need of care and pass sentence with a view to removing the causes which are conducive to a life of crime and for the purpose of educating and training him to lead an honest and disciplined life. Such facilities are at present grossly inadequate but will be provided for by the establishment, under the auspices of the concerned Ministries, of

training and certified schools; of attendance, detention and classifying centres; and of special remand homes. These institutions will, in addition, prevent the association of juvenile delinquents with adult criminals.

The Civil Courts Commission

WITH regard to the administration of the civil law, the Civil Courts Commission has recommended a radical change in our civil procedure. This Commission has drafted an entirely new Code of Civil Procedure based on the Indian Act but incorporating some of the latest innovations adopted in the Courts of England and the United States of America, to expedite the disposal of civil actions.

The report of the Civil Courts Commission and the draft Code of Civil Procedure will be published very shortly as a sessional paper. It is hoped to introduce this new Code within a reasonable time. It will be necessary for the judges and the lawyers practising in our civil courts to carefully study this new legislation and work according to its spirit if the objects of the framers of this new Code of facilitating and expediting the conduct of civil litigation in our courts is to be achieved.

New Codes of Civil and Criminal Procedure

IT is hoped to put into force within a short time these new codes of procedure and thereby contribute in a substantial manner to eliminate the delays in the disposal of cases. Many trial proceedings are at present unduly protracted. With the introduction of the new procedure, this period will be considerably reduced.

Revised Edition of Legislative Enactments

SINCE the last edition of the Legislative Enactments was brought out in 1938, there has been enacted a large amount of new and amending legislation. It is difficult to keep in touch with the numerous amendments to our legislation. To avoid these and to facilitate reference to the statutes in force, a new edition of the Legislative Enactments will be printed. All legislation enacted up to the end of 1954 will be incorporated in this edition.

Fiscal's Commission

ADMINISTRATIVE action is being taken from the beginning of the next financial year to implement the recommendations of the Fiscals' Commission. The escort of prisoners to and from the courts will be conducted by prison officers. After the necessary legislation has been passed, the Fiscals' Officers will be placed in charge of Superintendents of Process under the

direct supervision of the courts. The courts will be in a position to exercise direct supervision over the service of process from their courts and it is hoped to eliminate the delays now experienced in the service of process and to remove the abuses now prevalent amongst the lower rungs of the Fiscals' Officers. It has been decided to recruit a better and more educated type of officer as process servers on a slightly higher pay as recommended by the Fiscals' Commission, to ensure greater efficiency and honesty in the service.

New Court Buildings

IT has been the policy of the Government to provide suitable buildings for the courts. Justice should be administered in a solemn and dignified atmosphere. During the past six years new courthouses have been built at Mount Lavinia, Gampaha, Panadura, Kalutara, Chavakachcheri, Matale, Walasmulla and Hatton. New rural courts have also been built at Lunugala, Galgamuwa, Elpitiya, Nilaveli, Ranna, Kuruwita, Mihintale, Paddiruppu and Kuchchaveli. It is proposed to construct the first and second stages of the extensions to the Supreme Court buildings at Hulftsdorp at a cost of Rs. 1,100,000 and Rs. 1,900,000 respectively. New courthouses will also be built at Nuwara Eliya, Anuradhapura, Polonnaruwa, Ratnapura and Mannar and extensions effected to the courthouses at Kandy, Jaffna, Matara and Kegalle. It is also proposed to erect twenty-two new rural courts.

The work in connection with the first stage of the extensions to the Supreme Court buildings and the erection of the courthouse at Nuwara Eliya and rural courts at Amparai and Gangodawila will be commenced during the current financial year. A new Fiscal's office at Gampaha and a Fiscal's Lock-up at Ratnapura will also be built. Seven million rupees will be spent on buildings for courts and Fiscal's offices during the six-year period.

Quarters for Judicial Officers and Presidents

IT is not considered desirable that Judicial Officers should place themselves under obligation to landlords to secure houses to live in, for want of official residences. Under the acute housing shortage in Colombo and the outstations, Judicial Officers are put to great inconvenience to secure suitable houses on transfer when they are not provided with Government quarters.

The provision of official quarters for Judicial Officers and Presidents of Rural Courts is given high priority. It is proposed to erect quarters for twenty-three judicial officers and forty-two presidents at a cost of Rs. 3,000,000.

CHAPTER 29

POLICE AND PRISONS

Police

THE maintenance of law and order within the country is the Government's primary responsibility to the community. Failure to do so disrupts social relations and makes civilized living impossible. The Police as guardians of public order are entrusted with the dual functions of preventing the committal of crime and also apprehending the criminal once a crime has been committed. To accomplish both these tasks effectively, the police force must be adequately staffed and mobilized. It must also be well-equipped with those technical aids now so necessary to police work and detection.

THE TREND OF CRIME AND ACCIDENTS

Grave Crime—There appears to be a popular misconception that the grave crime rate has increased in the post-war period. The fact that the number of grave crimes both in absolute terms and in relation to population has, however, shown a consistent post-war decline is borne out by the following figures :—

Crime 1947–53

	1947	1949	1951	1952	1953
Total crime ..	28,286	21,549	18,090	17,911	18,016
True crime	20,090	15,003	12,110	11,940	11,690
Cases per 100,000 of the population ..	411.2	295.3	233.6	225.3	218.4

The alarming feature, however, is the number of the crimes of violence committed annually. The relevant figures are reproduced below :—

Crimes of Violence—1951–53

	1951	1952	1953
Crimes of violence	5,959	5,782	6,404
Homicide	383	411	429

CRIME AGAINST PROPERTY

Over the last three years the crimes against property have been of a fairly constant magnitude. Relative to population, there has been a decrease. Increased mobility, better communications, increased activity by day and night patrols have all contributed to keep down this variety of crime. Methods of investigation too have been considerably improved.

ROAD ACCIDENTS

The increase in traffic has brought in its wake an increasing number of road accidents. The rising trend is evident from the following figures :—

Road Accidents with Numbers Injured and Killed— 1951–1953

	1951	1952	1953
Motor accidents	10,772	12,050	13,945
Persons killed	286	282	358
Persons injured	5,734	6,316	7,068

In other words, at the present rate over 30 road accidents occur every day in which 19 persons are injured and one killed. Many reasons are adduced for this alarming increase. Some of them are :—

(*a*) Rapid increase in the number of vehicles,
(*b*) Poor standard of driving,
(*c*) Poor knowledge of road safety rules by pedestrains,
(*d*) Engineering defects in road construction and surfacing.

To combat such accidents the Police have intensified their preventive measures. The number of Road Patrols have been increased, road safety demonstrations are held regularly and road users are given instructions on correct road behaviour.

THE PROGRAMME OF DEVELOPMENT

ESTABLISHMENT

With the numerous calls made on the Police Service in the present day for the prevention and investigation of crime, for the control of crowds and traffic, and generally for the maintenance of law and order, it has been suggested that its strength should be calculated on the basis of one member

of the Police Service to one thousand of the population. The figures below show how this ratio has operated in respect of a few selected years since 1938. On the suggested criterion the Service is under-manned.

Cadre of the Police Service compared with Population 1938–1953 (Selected Years)

Year	*Estimated Mid-year Population (No.)*	*Cadre of Police Service All Ranks (No.)*	*Ratio of Police to 1,000 of the Population*
1938	5,826,000	3,279	1 : 1.8
1947	6,903,000	5,082	1 : 1.4
1949	7,321,000	5,583	1 : 1.3
1951	7,742,000	6,439*	1 : 1.2
1952	7,940,000	6,352	1 : 1.3
1953	8,155,000	6,981	1 : 1.2

BUILDINGS

One of the impediments to increased recruitment is the lack of buildings, both for police stations and for housing of personnel. At the end of 1953 there were altogether 221 police stations in the Island. There are some areas where the establishment of police stations has been sanctioned but owing to lack of suitable buildings have not yet been opened. Private land owners are unwilling to erect buildings suitable for police stations. Many rapidly developing areas are consequently unpoliced although they urgently need regular policing. In the Development Programme Rs. 2,000,000 is to be used for building new police stations with living quarters.

Many of the existing stations and quarters too have to be renovated or extended. The quarters at some of the stations were described by the Police Commission (1946) as "sordid beyond description". Decent living accommodation providing a modicum of comfort will contribute towards the well being and efficiency of the service. Blocks of flats to house constables, sergeants and inspectors are being and will continue to be built to overcome this difficulty. Altogether Rs. 77,762,000 have been earmarked for essential improvements and extensions to a number of police stations, offices and quarters. Of this it is estimated that Rs. 20,000,000 will be spent in the six-year period.

EQUIPMENT

A system modelled on the 999 system operated by the London Metropolitan Police has now been installed in Colombo City and its suburbs. The value

* Includes 209 recruits under training.

of the system increases proportionately with the number of patrol vehicles in telephone and radio contact with the Headquarters which can be cruising or stationed within its area of operation. More radio equipment and vehicles are necessary if this system is to operate to its best advantage.

Good communication facilities are also essential for the efficient functioning of the department. The telephone communication system can easily be disorganised, especially at times of riot or civil disturbance. It is therefore vital that the Police have its own communication system. Radio communication has already been established with most Headquarter Stations. The stations in remote areas are as yet outside the network. It is proposed to extend the Radio Communication System to cover as wide an area as possible.

Rs. 7,350,000 has been earmarked for the purchase of essential equipment, such as motor vehicles, wireless equipment, rifles, &c., during the six-year period.

Prisons and Probation Services

ONE of the fundamental problems in the administration of justice has been to devise methods of dealing with the law-breaker. Within the last three decades there has been much organised and critical thinking on the subject in all advanced countries and the problems of delinquency and criminal behaviour have been thoroughly investigated on a scientific basis. The results of these investigations have been accepted and the methods evolved from them have been put into practice in most countries. It is now universally accepted that the aim of punishment should be the elimination of all that is negative and repressive, and the substitution therefore of methods that are positive and constructive so that the law-breaker should be enabled to re-build his character and self-respect and to be trained in habits of good citizenship. Research studies in criminal behaviour have confirmed the view that such behaviour is the result, in greater or lesser degree, of social, economic and personal deficiencies such as poverty, ignorance, environment, lack of recreational facilities, inadequate and demoralized family relationships, feeble mindedness, emotional instability and similar traits, some or all of which may have existed from early childhood.

Prior to 1939 the only method adopted in this country in deailng with the law-breaker, other than by the imposition of fines or the inflicting of corporal punishment, and in a few cases by the binding over of the offender to be of good behaviour for a given period, was to send the offender to prison. The policy behind the prison administration of those days tended to be punitive and rigid though not entirely inhumane. The measures taken

somewhat tardily between 1931 and 1945 alleviated some of the conditions under which prisoners were confined. The establishment of a Prison Officers' Training Centre in 1937 and the establishment of a Borstal Institute in 1940 were two progressive steps taken during this period to bring our prison administration in line with conditions in the United Kingdom.

With the end of the world war and the granting of independence the attitude to the treatment of law-breakers changed. In 1945 a start was made with the organisation of a Probation Service and in 1949 the Gratiaen Committee was appointed to report on the penal administration of the country. The main recommendations of the Gratiaen Committee were accepted by Parliament, and steps were taken to implement them in stages. The staff of the Department has been greatly increased within the last ten years and the conditions of their service improved to some extent. Additional services were taken over and re-organised. In 1952, the Department was entrusted with the administration of the Certified and Approved Schools, and from October, 1955, the functions of the Fiscal in respect of the custody and escort of remand prisoners and the supervision of Fiscal's officers will form part of the activities of this Department.

PRISON INSTITUTIONS

One of the gravest problems in the sphere of prison administration that has confronted the country since 1935 has been the serious over-crowding in all its institutions. It was estimated that in 1939 the over-crowding in the prisons was well over 50 per cent. In accordance with the recommendations of the Gratiaen Committee, effective measures were taken to reduce this over-crowding. At the end of 1954 it was about 4 per cent.

Another serious problem that had to be faced was the inadequacy of the staff. Since 1947, however, the staff has been gradually increased and brought up to strength. Adequate training courses were also organised. It is now accepted that if the treatment of the offender is to be constructive and humane, the prison officer himself should be of a type adequately trained and re-orientated to bring to bear on his work a new attitude and approach, based on a humane and realistic understanding of the problems of the offender. Such a change, it must be admitted, is not one that can be brought about in a short period of time; but there is every indication of a change towards a progressively better system of treatment and training.

Progress has also been made in the segregation of youthful offenders, who are now sentenced to prison, from adult offenders. Scouting, educational classes, and recreational facilities have been organised for them. The same type of facilities has also been provided for adult prisoners wherever

practicable. Facilities for reading and study, outdoor and indoor games, and special facilities for cultural pursuits and hobbies have, as far as space and staff permit, been provided in most institutions. Progress has also been made in the provision of better food, clothing and medical facilities, in the improvement of standards and scope of industrial training and in the establishment of state-aided After-Care Associations.

An experiment of an entirely new kind to this country was started in 1951 by the establishment of an Open Prison Camp at Pallekelle in Kandy. The Open Prison Camp system has been tried out in other countries with great success. Within the four years of its existence in Ceylon the experiment has succeeded even beyond the most optimistic hopes of those who inaugurated it. The complete success of this experiment has opened up interesting possibilities in Ceylon for the rehabilitation of prisoners and their re-settlement.

Prisoners sent to an Open Prison Camp have to be carefully selected from the prison population after close observation. It is only those who can be kept and trained under minimum security conditions who qualify for transfer thereto. Over 750 prisoners have passed through the Open Prison Camp during the last 4 years. They have been trained in agricultural pursuits and community living, and have gone out better prepared for rehabilitation than the majority of those who are confined within the four walls of the prison up to the day of their release. It is a unique record that only one of them failed to respond to the trust imposed in him and escaped. But even this man came back to the Camp and surrendered within a few months. The system of open institutions has proved to be a most economic method of rehabilitation in that it has saved the State large sums of money which would otherwise have had to be spent on the erection of more buildings to meet the normal security needs of a prison.

In the endeavours enumerated above, the administration has been faced with certain basic problems. All the prison institutions in the Island have been constructed in thickly populated urban areas. It was perhaps never anticipated that these institutions would require expansion to meet the needs of an increasing criminal population or of changing times and policies. Owing to various factors it has not been possible to establish any new major prison institution within the last 25 years.

A fundamental principle in the treatment and training of offenders is the necessity for an effective system of classification. The first offender has to be segregated from the re-convicted prisoner, the youthful offender from the adult, the violent and dangerous type from each of the other categories and from those of more peaceful and amenable dispositions. The treatment and training given to one type varies from that given to another. It is,

however, agreed that the more varied and elastic the system of classification, the better the chances of rehabilitation. We have, therefore, need for more and diversified institutions for the purpose of effective classification. At one end of the scale would be placed those who can be trained under minimum security conditions as in an Open Camp. At the other end would be classed the dangerous and violent types who need maximum security and strict supervision. Between these two extremes would fall prisoners of intermediate types according to their history, character, aptitude, and susceptibility to rehabilitation. It will be the aim of the State to create within the next few years a system whereby this policy of classification by and within institutions is extended to meet the needs of the prison population.

BORSTAL INSTITUTIONS

Borstal Institutions, otherwise called Training Schools for Youthful Offenders are intended for the training and rehabilitation of all youthful offenders between the ages of 16 and 21, who are sentenced to terms of detention by the Courts. The term of detention is 3 years but an offender may be released after one year if his work, progress and chances of rehabilitation are good. The institutions provide for agricultural and industrial training, academic education and for such other amenities and services as are necessary for offenders of this age group. The broad lines of organisation are similar to those of ordinary boarding schools but with stricter discipline and wider programme of work.

The first of these institutions was estblished in 1940 and has gradually been expanded to accommodate about 300 offenders of this age group. A second institution was opened in 1953 to provide for the larger numbers who were being admitted. The second institution which is housed in a converted prison is intended to train the less amenable group of offenders. There are nearly 500 inmates in both institutions. The after-care work for these lads has been improved and strengthened through the services of a State-aided After-Care Association which is assisted in its work by a network of voluntary supervisors in all parts of the Island, and by Probation Officers. The percentage of successful rehabilitation of these lads is about 60 per cent. after 15 years of its first introduction into this country, whereas in the United Kingdom the figure is about 40 per cent. after nearly 50 years of its adoption.

At the time that the Youthful Offenders' Ordinance was introduced, provision was made only for certain types of re-convicted youthful offenders to be sentenced to Borstal detention. The result was that the Borstal

Institutions have up to now catered only for the re-convicted youthful offender between the ages of 16 and 21. Other classes including first offenders continued to be admitted to prisons. The Criminal Courts Commission recommended that in keeping with modern trends in other countries, no youthful offender between the ages of 16 and 21 should be sent to prison, except in the most exceptional circumstances. Over 900 youthful offenders of this age group continue to be admitted to prisons every year. The recommendations of the Criminal Courts Commission have now been embodied in amendments to the Youthful Offenders' Ordinance. It is therefore necessary that provision should be made within the next few years for the accommodation and training in Borstal Institutes of all youthful offenders sentenced to detention.

PROBATION SERVICE

The attempt to establish a system of "Probation" in Ceylon began as early as 1930 but it was not until 1944 that definite steps were taken to establish a state organisation on a sound basis to form the non-institutional side of the rehabilitation of the offender.

The value of "Probation" as a method of dealing with offenders has been universally acknowledged in all parts of the world. The method consists of a careful preliminary investigation of the causes of the criminal or anti-social behaviour of the offender, and thereafter, subject to the approval of the Court, of advising, guiding and befriending him in his normal environment for a period sufficient to rehabilitate him in society. The element of careful investigation and competent supervision makes recovery more certain and not only saves the State the expense of maintaining the offender in an institution, but enables him to maintain his family and social ties without interruption or stigma of institutional treatment. It is possible for any offender if found suitable after investigation, whatever the age, sex, or type of offence and previous criminal record, to be placed under probation and successfully rehabilitated. It emphasises the effect of the voluntary undertaking by the offender to mend his ways, which is an essential factor in probation, and has the advantage of starting, not with compulsion but with the offender's willing co-operation.

The Service with a staff of ten officers, which started in 1945 as an experiment in four areas, has within a period of 10 years been gradually expanded to 74 officers and 25 voluntary female officers and organised to cover the whole Island. In 1945, 311 persons were placed on probation. In 1954 there were 2,145 cases on probation. During the last 10 years, over

4,100 persons have been successfully rehabilitated and kept out of Prisons, Borstals and other Institutions. Most important of all is the fact that many of these cases have been saved from a life of crime and made useful citizens. They who might otherwise have been a continuing drain on the resources of the State are now contributing their share to the well-being of the community.

Apart from the work of supervision, the Probation Service has completed more than 15,000 social investigations for the Courts. They have brought relief and assistance to many families in distress. They have supervised offenders conditionally discharged under the Criminal Procedure Code, prisoners and Borstal lads released on licence, and have undertaken a certain amount of matrimonial reconciliation work. Since 1952 the service has undertaken the investigation and supervision of a large number of juvenile offenders, both delinquents and those in need of care and protection, referred to them by the Courts.

CERTIFIED SCHOOLS AND THE CHILDREN'S BRANCH

The Children and Young Persons Ordinance of 1952 provides among other things, for the protection of children and young persons, whether offenders or not. It brings within its scope any child or young person in need of care or protection, and includes those children without parents, those having parents who are unfit to look after them, those falling into bad associations, those beyond normal parental control, those against whom certain offences have been committed and even those who may be members of a household of which another member has committed an offence against a child. Such a child or young person falling within the ambit of the widely defined limits of the Ordinance may be brought before a Juvenile Court and given certain types of treatment, such as recognizance, probation supervision, committal to a fit prison or commital to a Certified or Approved School. The Ordinance acknowledges by implication the universally accepted theory that, basically, the need of a juvenile offender is much the same as that of a child in need of care and protection.

Once this principle is accepted, it becomes necessary that various methods be available to the Courts so that the most suitable method in each case could be used. Among these facilities are the provision of Certified and Approved Schools to accommodate those unsuitable for other forms of treatment, and the provision of some agency to investigate each and every case and to make recommendations to the Juvenile Courts as to the most suitable treatment for each case.

The Probation Service which was already well established and covers the whole Island is closely concerned not only with the supervision of delinquent juveniles but also with the investigation of all cases of children and young persons appearing before the Juvenile Courts. It is therefore proposed to enlarge and use the Probation Service for this purpose.

The Certified School at Hikkaduwa was established in 1952 to provide accommodation for about 125 young delinquents. Only the very minimum of staff, equipment and accommodation was provided with the result that in October, 1953, it was found to be totally inadequate to meet even the then existing needs. The Criminal Courts Commission in its report strongly criticised the lack of facilities for the training of this group of delinquents. There was urgent need for re-organisation of the School itself in view of the increasing numbers who were being admitted. As a temporary expedient a branch school was opened at Koggala to accommodate the overflow from Hikkaduwa.

At present there are nearly 400 boys in this age group in the Certified School. The establishment of two more Certified Schools has been provided for in the programme.

Mr. Cyril Hamlin of the Children's Department, Home Office, London, in his report, emphasised the need for the consolidation of the various agencies dealing with children and young persons, both delinquent and deprived. This involves the co-ordination into one organisation of the major services relating to children and young persons such as the Certified and Approved Schools, Orphanages, Remand Homes, and the functions dealing with the Adoption of Children. This policy has been accepted in principle as being one which would reduce duplication and overlapping in administrative matters, tend to establish a national set of standards to be maintained by institutions of all kinds catering for children, help to organise basic training courses for the entire staff, and introduce an effective after-care service as a vital and integral part of the rehabilitative process. Such an organisation will also be able to sponsor research into the problems of juvenile delinquency and make possible a national effort to arouse the public conscience regarding the welfare of the country's deprived, handicapped and delinquent children.

The effort made by any country, however small or undeveloped, to secure effective, comprehensive and enlightened care of its children is, in effect, a safe and secure insurance for the country's future.

Provision in a sum of approximately Rs. 11 million has been made in the programme for improvement of the Prison and Probation Services.

CHAPTER 30

THE ARMED SERVICES

AS in many other fields Independence brought in its wake increasing responsibilities in the sphere of Defence. Prior to Independence there was no Air Force and the Army and Navy were really volunteer groups supplementing the British Armed Forces stationed in Ceylon. But with complete self-government the country had to assume greater responsibility for its own defence.

A large Defence Force is superfluous at present. The armed services are required not for any aggressive purpose but entirely for defensive reasons. In the event of the country being involved in a war, the three Ceylon Services will have to fit themselves into an overall regional Defence Scheme and play the roles assigned to them within it. But in peace time too the Services have definite tasks to perform. The Police are normally responsible for preserving law and order within the country. But if civil disorder on a large scale breaks out, the strength of the Police is insufficient to maintain public order. On such occasions the Military Forces too are summoned to help the Police. A subsidiary function of the Services is to combat illicit immigration into the country. Service detachments are stationed at certain key points to apprehend illegal immigrants.

The limited resources of the country do not permit the recruitment of a large body of Regular Troops. The Regular Troops are to be a nucleus round which a substantially larger Force of Volunteers will be collected. The Volunteer strength will include a Home Guard and a number of departmental units which are in the process of formation. Recruitment to these Volunteer Services are now proceeding and the full complement should be reached before the end of the six years. During the six-year period a number of camps, training centres, &c., will be set up as well as quarters for married Service personnel.

The estimated cost of all the committed and new projects visualised by the Services during this period of development amounts to Rs. 145,806,000. Of this amount a sum of Rs. 17,704,000 has been spent up to the financial year 1953-54. leaving a balance of Rs. 128,102,000 outstanding. Unfortunately it will not be possible to fit in the entire scheme of development into the six-year period ending September 1960 and it is estimated that a sum of Rs. 33,534,000 will remain for expenditure thereafter.

It should also be noted that in phasing out the building projects consideration has been given to the fact that work is being carried out at the Army Cantonment at Panagoda by Army personnel under P. W. D. supervision and at the Air Force Flying Station at Katunayake by private contractors under the supervision (on an agency basis) of the Principal Works Officer of the Royal Air Force. The construction of the new firing ranges required by the Army and the building of the additional accommodation for the Second Artillery Regiment and the Second Infantry Battalion will also, it is hoped, be undertaken by Army personnel under P. W. D. supervision. Some of the other major building projects may have to be given out to foreign contractors in order to ensure completion within this six-year period.

PART FOUR

The Process of Development and the Technique of Programming

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CHAPTER 1

THE PROCESS OF DEVELOPMENT

THIS chapter is primarily concerned with the basic economic processes involved in a raising of average living standards. The phrase "economic development" appears many times throughout these pages. The process of development, however, is complex and involves far-reaching changes in the entire pattern of life and work. A discussion merely in terms of a rise in the standard of living is necessarily restrictive and partial; yet it affords a convenient starting point, for it reduces the analytical problems involved to manageable proportions.

A raising of the average standard of living carries with it several implications which could usefully be sorted out.

It implies first, unless savings were to fall, an increase in the availability of goods and services. It implies also that these goods and services are consumer goods and services for the latter are the constituents, so to speak, of the standard of living. It implies third, that in the context of a growing population the availability of consumer goods and services is at a rate faster than that of population growth. There is, in addition, a fourth factor which, though not implicit in the narrow arithmetical meaning of a rise in the average standard of living, is of crucial importance if the concept is to have any real meaning. This factor is a distributive system by which the major share, at least, of the increased availability of consumer goods and services reaches those broad groups whose living standards are lowest.

What determines the availability of consumer goods and services? In a closed economy with no trade with the outside world the availability of consumer goods and services would depend merely on the production, within the economy, of those goods and services. In such an economy the total of physical output is identical, both in value and in composition, with the total of real income—or the physical components of consumption and investment. For an open economy, however, which is heavily dependent on foreign trade, an important modification is necessary. The total of physical output in such an economy consists of goods and services for both the domestic and export markets. The total of real income, on the other hand, consists of goods and services of both domestic and imported origin. There is, in other words, a dichotomy between real

output and real income and it is insufficient to explain the determinants of the availability of consumer goods and services in terms of real output alone.

The nature of the modification made necessary by the existence of foreign trade may be clarified at the outset. In 1954, for example, some 35 per cent. of the gross national output of Ceylon was represented by Ceylon's exports to the outside world, and a similar proportion of the gross national income by imports. The components of the gross national output of Ceylon may conveniently be divided into the three groups—domestic output of consumer goods used locally, domestic output of producer goods used locally, and exports. The components of gross national income may likewise be divided into the four categories—domestic consumer goods, domestic producer goods, imported consumer goods and imported producer goods. Goods in all cases here are, of course, inclusive of services as well. Allowing for changes in stocks, there is a *physical* identity between the first two categories of both gross national output and gross national income. But, allowing similarly for changes in foreign balances, there is only a *value* identity between the last category of gross national output (exports), and the sum of the last two categories of national income (imported consumer goods and imported producer goods). The existence of only a value identity poses a special problem. It means that it is not possible to account for the import constituent of consumption in terms of the output of export produce alone. The volume of total imports, corrected for change in foreign balances, would depend on two factors additional to the volume of exports. These factors are the price of exports and the price of imports. Clearly, a modification to take account of these factors must be made in explaining the determinants of the availability of consumer goods and services.

The Terms of Trade

THE ratio of export prices to import prices is commonly known as the terms of trade. It is easy to see that an improvement in the terms of trade can possibly lead to an increase in the availability of consumer goods and services and hence to a rising standard of living in conditions where total output in the economy is static or even falling. An improvement in the terms of trade signifies an improvement in the capacity to import, in real terms, of a given volume of exports. Conceptually, the improvement in the terms of trade could be of such a magnitude as to offset the effects, on real income and the standard of living, of a contraction of not only export output but of total output in the economy as well. The converse would similarly be true for a deterioration in the terms of trade. The effects

on the standard of living of an expansion in physical output in either the domestic or the export sector could be offset or be more than offset by a deterioration in the terms of trade. In this event, an intensified production effort would merely have the effect of preventing a further fall in living standards instead of securing an actual improvement.

There are two factors which give the problem of the terms of trade a place of special importance in an analysis of the process of development in Ceylon. The first, as already mentioned, is the relatively large share at present occupied by exports and imports in the respective totals of Ceylon's national output and national income. The second is the liability of the terms of trade to change over both short and long periods. If imports, for example, occupied a negligible place in the composition of national income even a doubling of consumer imports in real terms, through the terms of trade or any other means, would be of only minor consequence to the aggregate level of consumption. In Ceylon, on the other hand, a marked change in the terms of trade would be of considerable significance to living standards in general. It is possible, although by no means implicit, that in the course of development the share of imports to total national income will fall. But, unless the rate of growth is truly exceptional any marked fall in the share of imports could only be looked upon as a long term phenomenon.

The second factor is the liability of the terms of trade to change. Obviously, the terms of trade will have no significance to the level of consumption if they remained constant over time. Ceylon, however, has in the recent past experienced considerable changes in the terms of trade. These changes have been of both a short and a long term character. The real long term changes, however, are not easy to identify. A smoothing out of the annual series of the terms of trade of Ceylon in the post-war period, for example, reveals a movement in an upward direction. It would, however, be quite hazardous to read into these figures any continuing long term trend. The problem of the long term relationship between the prices of agricultural and of industrial products entering into world trade has been a subject of considerable discussion. Yet the problem of Ceylon's terms of trade could not be resolved merely on this basis. Ceylon's exports are primarily agricultural. Her imports, however, in addition to manufactured goods, consist of a large proportion of agricultural produce in the way of rice, sugar and other foodstuffs. Price changes in this latter group of commodities exert, therefore, a considerable influence on the country's terms of trade. Since a good part of Ceylon's development activities is devoted to increased production of foodstuffs it is possible that over a period the importance of agricultural produce in the pattern of imports would decline. But until such time, projections of the trend movement in

the terms of trade between agricultural and manufactured products in general would not serve even as approximations to the long term trend of Ceylon's terms of trade.

During the post-war period there has been an upward trend in Ceylon's national income at constant prices. This increase has made it possible for per capita real income to rise in the face of a rapidly expanding population. Per capita consumption too has risen indicating a mild improvement in the average standard of living. A sizeable part of the increase in real income, however, has been due to an improvement in the terms of trade. If the gains due to the terms of trade are deducted from the total of real income the course of per capita income at constant prices would perhaps be considerably modified.

A large part of the discussion that follows is confined to an analysis of the determinants of future output in the economy. In the succeeding chapter an assessment is made, on the basis of limiting assumptions, of the broad magnitude of the investment effort that might be involved in the achievement of a given output. All these discussions abstract from possible changes in the terms of trade. The importance of the latter factor, however, has constantly to be borne in mind. The effects on real income of any given level of investment activity in the country can be readily negatived by downward movements in the future terms of trade. Improvements in the latter may, on the other hand, enhance the expansion in real income and so advance the rate of achievement of stated objectives. There is a further point. Domestic output and the terms of trade are not in fact autonomous factors unrelated to each other. Ceylon's exports and imports occupy a relatively small share in the world trade in the relevant commodities. It may, therefore, be justifiable to assume that the terms of trade are determined independently of changes in domestic output and demand. Domestic output, on the other hand, is to some degree dependent on the terms of trade through its effects on the cost-price structure of the economy. Thus the domestic output of exports, for example, may expand when the terms of trade improve since export prices may rise and production costs fall with a cheapening of imports.

The Determinants of Output

THE significance of the terms of trade as one of the factors determining the *availability* of consumer goods and services was discussed in the preceding section. Expanding prosperity through a continued improvement in the terms of trade is not, however, within the usual connotation of the term economic development. The latter is normally associated with an

expansion in the *output* of goods and services, or an increase in the productive capacity of the economy. It is to this problem, therefore, that we must now turn.

It is customary to list the factors which could bring about an increase in output under three heads. These are—(*a*) a higher utilization of the existing capital stock, (*b*) simple improvements in methods of production and (*c*) capital formation. The significance of each of these factors to the Ceylon economy are discussed in the section that follows. There is, of course, a fourth factor which is not discussed here but which is of particular importance to agricultural countries. This factor is a change in weather conditions. These changes, however, are excluded from the discussion below as they are not usually amenable to conscious control.

HIGHER UTILIZATION OF CAPITAL

An obvious illustration of raising output through the greater ultilization of existing capital is a process of economic recovery that may follow a severe depression. This process is particularly apparent in industrialized countries where labour and equipment suffer spells of idleness in conditions generally associated with a deficiency of demand. The extended operation of existing machinery through double shift working in conditions of war could also lead to an expansion of output.

In Ceylon too some degree of under-utilization of existing productive capacity does arise in periods of low prices particularly in the export sector. This phenomenon, however, is related more to the problem of cyclical instability than to the problem of development. What is of decisive importance is the fact that the operation of the existing capital stock at full capacity, both on account of its nature and its quality, would still not yield an output consistent with an adequate standard of living or provide adequate employment for the total labour force. It is for this reason that "full employment" policies operated solely through monetary and fiscal measures are inappropriate to countries like Ceylon.

IMPROVEMENTS IN METHODS

Relatively simple improvements in techniques and methods of production which require little or no complementary capital resources could have far-reaching effects on output. In Ceylon this factor is likely to be of considerable importance. Where existing methods of production are primitive or out-dated a substantial contribution to output through a change

in these methods could be expected. It is true that, in practice, it is not easy to divorce changes in methods and techniques from changes in the stock of capital. But there is possibly a fair range of productive activity over which simple improvements to tools and equipment combined with more scientific production methods could secure sizeable additions to output. This type of improvement is, of course, of special relevance to the whole field of peasant agriculture where traditional methods of cultivation are proving a drag on production. The possibilities of an increase in yields through these means offer a promising avenue of progress. It is, in fact, one of the most important ways by which the problem of the scarcity of capital could be overcome. Agricultural extension work and allied activities usually make but modest claims on the budget of an investment programme. Their importance to the production effort of the country is often, however, quite out of proportion to the expenditure involved.

Much of the discussion which follows is devoted to the problem of capital formation. The relationship between additions to capital and increases in output is, in particular, emphasized. This emphasis should not, however, detract from the role that could be played by better methods and techniques of production associated with only minor additions to the capital stock. There may indeed be wide fields of activity over which the so-called "capital-output ratio" is appreciably low on account of this factor, at least during the early stages of development.

CAPITAL FORMATION

The third of the determinants of output listed above is capital formation. From a long run point of view this is, perhaps, the most important for the two previous factors cannot be expected to secure indefinite advances.

The existence of a marked correlation between output and capital, per worker, in different countries and regions has been suggested by a number of statistical studies. This illustrates, in a sense, the role played by capital goods in the form of machinery, equipment, transport facilities, and other aids in the process of production. The output of labour is enhanced by the provision of these aids. As already indicated output could, up to a point, be expanded by the adoption of improved methods of work. But even this would involve the use of at least simple instruments of production. The stage would, in any event, be soon reached when the further expansion of output is dependent on the augmentation of the stock of capital. The process of capital formation is none other than the augmentation of the stock of capital through the construction and provision of capital goods.

Components of Capital Formation

IT is necessary to be clear about the components of capital formation and about the relationship between capital formation and output. The annual output of goods and services in the economy may be divided into two broad categories—consumer goods and services and producer goods and services. The former category consists of items entering into final consumption—goods and services which are, in other words, used up in the process of daily living. The latter category embraces items which are required not for final consumption but as aids to the production of final consumer goods.

Producer goods and services may themselves be further subdivided into two groups—capital goods and intermediate goods and services. The distinguishing characteristic of capital goods is durability. These goods represent assets which are usable over time and yield a continuous flow of output. Durability itself has, of course, to be expressed in concrete terms. Here there can be no universal rule ; but since the measurement of changes in the stock of capital is central to the statistical treatment of the problem, international convention defines durability in terms of the usual accounting period of a year. When the accounting period is longer—as would be the case with long term plans—there is a case for extending the period of durability to a correspondingly greater length of time.

The category intermediate goods embraces raw materials which though not capital goods on the durability test are at the same time not articles of final consumption. Changes in inventories or stocks of intermediate goods or even of consumer goods over the accounting period are normally included in the measurement of capital formation, as are also changes in foreign balances. But the distinction between capital goods in the sense of durable physical assets and intermediate goods is of importance in view of the relationship between investment in the former and the process of development.

The criterion of durability raises the problem of durable commodities purchased by consumers. Items like motor cars, radios, household utensils, furniture, etc., often have a lifetime of service in excess of the accounting period. However, durable but movable goods of this sort are by convention excluded from the category of capital goods in national income accounts. This is due in part to their affinity to consumption, and in part to difficulties in measuring the value of the services they provide. Residential houses, however, are included in the definition of capital since rents provide a ready measure of the value of the services and since the construction of houses is considered to be more akin to investment than to

consumption. If we exclude, for the purpose of this discussion changes in inventories and in foreign balances, investment or capital formation may be regarded as the construction or provision of capital goods.

Capital Formation and Output—(a) Spheres of Investment

WHAT then is the relationship between capital formation and output ? The significance of a machine or a piece of equipment as an aid to production is readily grasped in popular discussion. Capital formation, however, as indicated above embraces a much wider range of assets and there is often some measure of confusion concerning the relationship between the creation of certain types of these assets and output.

Part of the confusion arises out of the common tendency to identify output with the production of tangible goods. The creation of capital for the purpose of producing a tangible commodity, e.g., shoes, is readily classed as 'productive' whilst the creation of assets for the production of an intangible service, e.g., education is described as 'unproductive'. Such a distinction, however, is quite untenable. Services are as much a constituent of real income or output as tangible goods. An increase in the volume of the former will have the same impact on the aggregate of national income as an equivalent increase in the value of the latter. The rental value of houses is as much a part of the national income as the value of the output of, say, tobacco. Capital formation by way of house construction is, therefore, no less 'productive' than capital formation for increasing the output of tobacco.

There is, however, another sense in which it would be meaningful to differentiate between different types of assets in relation to their effects on output. A distinction was made, in an earlier paragraph, between consumer goods and services on the one hand and producer goods and services on the other. Capital formation was described in terms of the production or construction of the latter category. Producer goods and services, however, are possessed of a special characteristic. They comprise or constitute aids to the production of not only consumer goods and services but of producer goods and services themselves. Investment or capital formation, therefore, could be of two types: investment for the expanded production of consumer goods—or investment in the consumer goods sector on the one hand, and investment for the expanded production of producer goods—or investment in the producer goods sector on the other.

If a given volume of capital, in the sense of durable aids to production, is created in or applied to the consumer goods sector an early increase in the annual output of consumer goods could be expected. However, in so

far as that increment to capital is concerned the process ends there. If, on the other hand, the same volume of capital is invested or applied in the producer goods sector the consequences are more far-reaching. What happens in the first stage is an early expansion in the annual output of producer goods with no immediate repercussions on the volume of consumer goods. In later stages, however, the impact on the volume of consumer goods is multiplied. The increased flow of producer goods when applied to the consumer goods sector makes possible a progressive increase in the capital stock in that sector, with cumulative effects on the annual output of consumer goods. The rate of expansion of the total capacity in the economy is thereby enhanced. The rationale of investment in the producer goods sector could, of course, be applied backwards to a succession of stages in the productive process. But the argument does not extend indefinitely. There are certain basic goods like steel, heavy chemicals, power, and so on, which lie at the perimeters of the process and constitute, therefore, the hard core of the capital goods industry.

The argument above is not altered by the possibility of importing capital equipment. The expenditure of a given volume of foreign exchange on imports of machinery for the consumer goods sector has effects on ultimate output which differ from those produced by the expenditure of the same volume of foreign exchange on machinery for the producer goods sector. The latter expands, so to speak, the productive base of the economy.

However, the foregoing does not imply that the rate of expansion in the economy could be increased indefinitely by an indiscriminate application of the principle of investment in the producer goods sector. At least three limiting factors are present. There is, first, the time factor. Investment in the producer goods sector results in an ultimate acceleration of the output of consumer goods. If the period of time is protracted, however, and in the interim consumption levels are too low for adequate subsistence, productive efficiency will fall so low and social stresses become so heavy as to render the process self-defeating.

The second factor too is partly related to the problem of time. This is the question of returns. The magnitude of the eventual increase in the output of consumer goods is, partly, dependent on the relationship between output and capital invested in alternative spheres. In principle, as long as the net output (i.e., gross output less value of materials and the cost of keeping capital intact) of a unit of capital in the producer goods sector is positive, there must be some period of time when the cumulative increase in the flow of consumer goods which ultimately results from it, exceeds the flow of consumer goods that would arise through the direct investment of an equivalent unit of capital in the consumer goods sector. This is true

irrespective of the net output of capital in the latter sector. The period of time, however, may be so extensive that the process is hardly worthwhile. If, in fact, a specific period is assumed for maximising the flow of output differences in the relative returns to capital which favour the consumer goods sector may make investment in the latter sector more desirable.

The third factor relates to the type of producer goods in which investment is to take place. The magnitude and pattern of investment in the various branches of the producer goods sector must obviously bear some relation to the type and volume of consumer goods which it is ultimately intended to create. Investment in the producer goods sector must not, for this reason, be indiscriminate. Indeed, historically, the expansion of the producer goods sector has tended to follow the increase in demand for consumer goods.

The foregoing discussion has analysed the relationship between an expansion in the output of consumer goods and the spheres in which asset formation takes place. It has shown that if the time factor is discounted there is a sense in which capital formation or investment in the producer goods sector may be described as being more ' productive ' than investment in the consumer goods sector. Poor countries with low living standards have, thus a difficult choice. The pressure of extreme poverty may point to capital formation in the consumer goods sector where returns are relatively quick ; yet such a course may slow down the rate of expansion in the economy and make more difficult the ultimate solution of the problem. This difficulty becomes more pointed in conditions of rapid population growth. However, strongly immediate pressures indicate a rapid expansion in the output of consumer goods, the probable gains through direct capital formation in this sector may be outweighed by the rise in population. In this event the expansion of the productive base of the economy through investment in the producer goods sector may offer the only solution to the long run problem.

The factors mentioned above help to bring out the significance of public sector investments in the total investment programme of the economy. Many underdeveloped countries have mixed economies. At the same time the share of the public sector in the total economy is large. Public sector programmes, however, by their very nature tend to have certain characteristics. On the one hand, they include investments which are akin to investments in the consumer goods sector. On the other hand, they include projects which approximate to investment in the producer goods sector. The choice of priorities between these types of investment will affect the cverall capacity of the economy and the process of development in the way we have already discussed.

Most public sector investments whether in the consumer goods sector or in the producer goods sector by their very nature, however, produce

yields which are neither marketable nor tangible. They are for this reason prone to be classed as 'unproductive'. But such a conclusion, as we have seen, is unwarranted. The contribution of public sector investments to the process of growth is measured not by the tangibility or marketability of the output, but by its impact on the productive capacity of the economy. Investments in transport, communications, power projects, technical training and so on are akin to investments in the producer goods sector which expand the country's economic potential. On the other hand investments in fields like health, education, the social services, general housing and even administration provide amenities and services of collective consumption whose bearing on the productive capacity of the economy is less direct.

But even the latter group of services make their contribution to development. There is after all a wider sense in which the expansion of the producer goods sector is itself dependent on an expansion in the consumer goods sector. We have, throughout this discussion, looked upon producer goods and services as aids to the output of consumer goods. In one respect, however, the relationship is reversed. Labour is a factor of production. In so far as consumption enhances the quality or even the quantity of labour it carries with it some of the properties of investment. Where standards of nutrition, health and education are low the returns to investment in the producer goods sector are correspondingly low and the rate of expansion in the economy is retarded. 'Investment in men' may, in these conditions, reap rich rewards. Underdeveloped countries have to strike a balance between the respective types of investment appropriate to their own conditions. But circumstances are not, perhaps, rare where the paradox "consumption is investment" is a grim reality.

Capital Formation and Output—(b) Techniques of Production

THE previous section discussed the problem of output as a function of the spheres in which capital formation takes place. But output is, in part, also a function of the type of productive techniques employed within the different spheres. It is to this aspect of the problem that we must now turn.

The relationship between capital formation and the resulting increase in output may be expressed quantitatively in terms of a capital-output ratio. A given addition to the capital stock results, often after a time lag, in a given increase in annual output. The capital output ratio expresses the value of the addition to the capital stock as a ratio of the value of the

increment to output. Thus, if the value of the addition to capital is Rs. 300 and the value of the resulting increment to annual output is Rs. 100, the capital-output ratio is 3 : 1.

The capital-output ratio is sometimes expressed in terms of gross output. For the purposes of this discussion, however, the significant factor is net output, i.e., gross output less the value of intermediate goods less depreciation. Such an approach makes it possible to regard the increment to current output as being of a permanent nature. If only gross output was considered an allowance would have to be made for the life of the asset and for the use of intermediate goods. (In such a case the cumulated value of intermediate goods over the life of the asset plus the capital value of the asset will have to be deducted from the total cumulated value of gross output over the life of the asset. The result must then be divided by the length of life of the asset expressed in years to show net annual output).

The basic premise of the discussion that follows is that over a period of time the volume of capital is limited whilst labour is plentiful. Capital, in other words, is a scarce factor ; and the problem is under what sort of productive technique should the limited volume of capital be applied in order to yield the maximum increment to annual output. Output, in other words, is dependent not merely on the quantity of capital but on the type or quality of capital as well.

The problem is best approached from the point of view of two alternative techniques of producing *a given output*. On the one hand, there would be techniques which require more of capital and less of labour. On the other, there would be techniques which require less of capital and more of labour. The capital-output ratio is less favourable in the first group than in the second, although the productivity of labour is higher. In conditions of scarce capital and plentiful labour the choice between these two techniques is obvious. By adopting the second technique of capital use the increment to output from a fixed stock of capital is maximised, notwithstanding the reduced productivity of labour.

The argument above does not, however, imply that there should be an unqualified adoption of labour intensive techniques. The objective is not to minimize capital per worker indiscriminately but to minimise the ratio of capital to output. It is only where the latter condition is satisfied, as in the above examples, by the existence of efficient labour intensive techniques that these techniques should be adopted. Whether there are in fact alternative ways of producing a given output depends on technology. Technology in countries with scarce capital and plentiful labour should search for methods of production which will yield a given output through the use of less capital and more labour. It should, in other words, search

for methods which minimise the capital-output ratio and are at the same time labour intensive. But where the former condition is not satisfied, the use of labour intensive methods would prove wasteful of the limited volume of capital, and so retard the growth of output.

It is in this latter sense that there is room for conflict between the requirements of maximum output and the requirements of maximum employment. To the extent that modern technology concentrates on labour saving techniques the criterion of minimising the capital-output ratio may only be satisfied by capital intensive methods. Labour intensive methods may, in comparison, be so inefficient that notwithstanding the economy of capital the capital-output ratio is higher. In such a situation even a poor country with scarce capital and plentiful labour will have no alternative but to adopt capital intensive methods if it is to obtain the maximum output from its scarce capital. Since the volume of output is larger, however, the average standard of living could, by this means, be raised—provided an adequate system of distribution exists to channel part of the increment of output to the unemployed. Where the latter proviso is not satisfied, however, and where employment is the most effective instrument of distribution a case for labour intensive techniques could perhaps still be made. But this would be confined to social grounds, where a better distribution of a lower output is to be preferred to an uneven distribution of a higher output.

The problem of development is often discussed in terms of an improvement in the productivity of labour. The foregoing discussion suggests, however, that this emphasis is possibly misplaced. In countries with scarce capital and plentiful labour an approach in terms of improving the productivity of capital may, perhaps, be more appropriate. This would involve the use of techniques which, for a given output, effectively substitute labour for capital. If labour was a perfect substitute for capital in all fields the process could, within a given volume of capital, be carried to the point of full employment with the same amount of capital per worker in each field. But this condition is not satisfied in reality. The minimisation of the capital-output ratio may, depending on technology, involve varying amounts of capital per worker in different fields and the distribution of the limited stock of capital may stop short of full employment. But to the extent that technology is successful in evolving labour intensive techniques a rising volume of employment is compatible with the maximisation of output.

An increase in employment, within a limited volume of capital, through the pursuit of labour intensive techniques may, of course, involve a lowering of the average productivity of the total v ork force. This process would

cease, however, once the point of full employment is reached. Thereafter, the application of capital to labour will naturally result in progressively capital intensive techniques which raise the overall productivity of labour. In these conditions labour would be the fixed factor and technology would seek out methods to produce a given output with less of labour and more of capital.

The search for labour saving techniques is often a familiar characteristic of the progress of technology in the relatively advanced countries. In these countries the existing capital stock is generally able, when working at full capacity, to absorb almost the whole of the work force. Further capital formation then takes the form of additions to the capital stock which enhance both output and capital per worker. Poor countries whose problems differ, however, do not usually have a modern technology specially devised for their needs. They have often to lean on or borrow the technology of advanced countries to obtain the maximum output from limited capital. This process naturally has its limitations as regards the volume of employment and poses the problem of idle manpower. It is largely through the search for capital saving techniques and for fields of investment in which these techniques could be used that an effective way out could be found. The role of technology is thus emphasised.

There are three points in the nature of qualifications which remain to be stated. First, the obvious one, that capital saving techniques must be suited to the quality of both the labour supply and of the ancillary facilities available in poor countries. Thus capital saving devices with a heavy emphasis on advanced skills or on highly developed ancillary services may not suit the immediate needs of these countries. Second, the criterion of minimising the capital-output ratio may have to be applied in many cases not to individual investments but to groups of related or complementary investments taken together. Certain investments with a high capital-output ratio may be pre-requisites for other investments with a low capital-output ratio. Some of the overhead or basic services of the economy, as described previously, may represent investments of this nature. Third, a qualification must be made for the process of capital formation over time. The preceding analysis was confined to the case of a fixed volume of capital. It implies therefore a fixed period of time. Within these assumptions the attainment of full employment is only possible through the use of labour intensive techniques. However, over a period of years, there is likely to be a progressive increase in the volume of capital formation and if the period of time is sufficiently extended an approach towards ultimate full employment is not inconsistent with a parallel increase in the amount of capital per worker.

Resources for Capital Formation

THE preceding section was devoted to an analysis of the determinants of real income and output. Whilst recognition was given to such factors as the terms of trade, the higher utilisation of capital, and improvements in productivity through the adoption of better methods, the dominant role of capital formation as a determinant of output was specially underlined.

In the present section the determinants of the magnitude of capital formation itself are examined. This involves, in a sense, a reversal of approach. Hitherto the discussion has been in terms of capital formation as a source of increased output. In the discussion that follows the emphasis is on output as a reservoir, so to speak, of resources for capital formation.

Two processes whereby resources are secured for additional capital formation may be broadly distinguished—processes which involve a reduction in total consumption and processes which do not involve such a reduction. In the case of the latter type of process, where current consumption is not reduced, an increment to total real incomes as a source of additional resources is implied. This, in turn, suggests that all the determinants of additional real income or output discussed in the preceding section are potential sources of capital formation as well. In other words, part of the increment to output or real income arising out of the terms of trade, higher utilisation of existing capital, improvements in productivity, and capital formation itself, may take the form of additional capital goods. These are all, therefore, potential sources of capital formation. There are two further sources that may also be added to this group. These are idle resources and loans or grants from abroad. The discussion below briefly examines each of the broad groups mentioned here.

A REDUCTION IN CONSUMPTION

Capital formation is primarily a physical process involving the use of physical resources for the production or construction of durable assets. Where this process involves a diversion of physical resources away from the production of consumer goods, whilst productivity remains unchanged, a reduction in total consumption will result. Such a situation would arise, for instance, in conditions of full employment where additional resources for capital formation can only be secured through the release of factors already engaged in the production of consumer goods. In this event the output of consumer goods would fall involving a reduction in total consumption.

This process has its financial aspect. Where the reduction in consumption is accompanied by an equivalent fall in the aggregate money outlay on

consumer goods there need be no change in the general level of prices. But where a corresponding fall in money outlays does not take place prices will tend to rise. The fall in money outlays may be brought about by increased voluntary savings or by increased taxation. Where productivity remains unchanged, the value of the fall in consumer output will be measured by the incomes of the productive factors removed from the production of consumer goods and applied to capital formation. The increase in voluntary savings or in taxation needed to reduce money outlays on consumption must, therefore, cover the value of the incomes of the additional factors applied to capital formation. The increase in savings or in taxation must, in other words, suffice to 'finance' the additional investment.

Where the latter condition is not satisfied aggregate money outlays on consumption will exceed the value of the reduced output of consumer goods and prices will rise. The reduction in total consumption is now brought about not by an initial increase in savings or in taxation but by a rise in prices. Those groups whose money incomes have not kept pace with the rise in prices will bear the burden of the cut in consumption. In the case of an open economy, however, the additional resources for capital formation may possibly be diverted from the export sector leading to a fall in export output. Unless this investment is financed out of increased savings or increased taxes, the aggregate outlays on imported consumer goods may exceed the value of export earnings. Disequilibrium in the balance of payments and a decline in foreign balances will, in this instance, take the place of a reduction in consumption or a rise in prices. But the process cannot continue indefinitely. With the exhaustion of foreign balances additional imports will cease and eventually give way to a rise in domestic prices and a fall in total consumption. This will occur whether the reduction in imports is brought about by exchange depreciation or by import control.

The discussion above indicates some of the difficulties which poor countries would have to face if they attempt to step up capital formation through a reduction in total consumption. Existing income levels and standards of consumption are too low to permit of substantial increases in either savings or taxation as methods of financing additional investments. 'Inflationary' methods on the other hand which increase money incomes will impose considerable pressures on prices or on the balance of payments. These pressures are likely to be specially large where the increment to savings resulting out of the additional money incomes is small. In these conditions severe disturbances to monetary stability, income distribution, and the price structure, could take place at a relatively early stage.

All this suggests that in poor countries there is not a great deal of scope for a substantial stepping up of capital formation through a reduction in total consumption. The limitations of such a course are, of course, intensified in conditions where population is itself increasing and where a given cut in total consumption will involve a more than proportionate cut in consumption per head. Countries placed in such a situation will have, in practice, to look to other methods for securing resources for further capital formation.

INCREMENTS TO REAL INCOME AND OUTPUT

The difficulties discussed above underline the importance of techniques which secure resources for additional capital formation without a reduction in total consumption. Both capital and consumer goods form part of the total real income of the community. Additional capital formation without a reduction in total consumption implies, therefore, an increase in total real incomes. Where total real incomes are increasing a part or all of the increment to real incomes may be devoted to capital formation. In these conditions the volume of total consumption may remain unchanged or even rise whilst capital formation is itself increasing.

The process of applying to capital formation a part or whole of the increment to real income has also, however, both physical and financial aspects. In the physical sense the process implies that the relevant portion of the increased real incomes takes the form of capital goods. In the financial sense it involves the payment of money incomes to productive factors engaged in the production of these goods. As in the case previously discussed a financial problem still exists. If the additional incomes of those engaged in investment activity are not covered or 'financed' by additional savings or taxes the total outlay on consumer goods may exceed the available supply. A rise in prices then occurs. The problem here, however, is not one of increasing savings or taxes by reducing total consumption; it is, on the contrary, one of devoting to savings or to taxes a portion of the increment to real incomes. The latter process would, of course, have its own difficulties. Its success may depend, for instance, on the savings or the tax paying abilities of those to whom the additional real incomes accrue. But, in principle, increases in savings or taxation in the background of rising real incomes should be relatively more feasible than similar increases in the face of constant real incomes.

Since increments to real incomes are potential sources of capital formation the various determinants of additional output that were discussed in an earlier section may now be looked at from this point of view.

THE TERMS OF TRADE

The manner in which changes in the terms of trade could enhance total real income has already been illustrated. An improvement in the terms of trade can contribute to increased capital formation in at least three ways. First, it may make possible an expanded import of capital goods. Since a given volume of exports now exchanges for an increased volume of imports a part at least of this latter increase can take the form of capital goods without involving a corresponding reduction in the imports of consumer goods. Second, an improvement in the terms of trade may enable consumer imports to be kept at a constant volume whilst domestic resources are diverted away from the export sector towards the production of additional capital goods. Third, an improvement in the terms of trade may make possible a similar diversion of resources from the production of domestic consumer goods. Total consumption may still be maintained since the reduction in the domestic output of consumer goods could now be offset by additional imports of these goods. A stepping up of capital formation through changes in the terms of trade would, of course, involve parallel changes on the financial side of the kind already discussed. Special mention may, however, be made of an improvement in the terms of trade which takes the form of a rise in the relative prices of exports. The mechanism of the export duty provides a relatively simple device for taxing the potential beneficiaries of the improvement in the terms of trade in order to finance a higher volume of capital formation, usually in the public sector. This source has probably been of some importance in Ceylon in recent years where an increase in the rate of capital formation has accompanied a rise in total consumption.

THE UTILIZATION OF EXISTING CAPITAL AND IMPROVEMENTS IN METHODS

Increases in output through the higher utilization of existing capital or through improvements in methods of production could contribute towards additional capital formation in much the same way as improvements in the terms of trade. When the enhanced productivity is in the capital goods sector the expansion in capital formation is direct. But improvements in the consumer goods sector could also contribute towards capital formation by permitting the diversion of resources from this sector or by enabling the substitution of imported capital goods for imported consumer goods. It was mentioned earlier that there is possibly much scope in poor countries for expanding output through the adoption of improved methods. This would provide an important source of resources for capital formation. Difficulties are, however, likely to arise on the financial side.

Where the improvements in productivity accrue, for instance, to small agriculturists whose consumption levels are low an effective increase in either savings or taxation may prove difficult. The increment to output may, in other words, be absorbed in enhanced consumption; total consumption in the community instead of remaining constant will, in this case, rise.

CAPITAL FORMATION ITSELF

The fourth and possibly the most important source of increased output is capital formation itself. Capital formation must in this sense be considered as amongst the most potent of the sources for further capital formation. Investment could, in other words, feed upon itself and thereby make possible a cumulative process of expansion.

The manner in which capital formation increases output has already been illustrated. Where a part of the additional capital is applied to the producer goods sector part of the resulting increase in output will be represented by an increase in producer goods. The application of these latter goods to the productive process will then result in a further expansion in output part of which may, in turn, be applied to further capital formation. Where, on the other hand, the additional capital is initially applied to the consumer goods sector the increment to output will take the form of an increase in consumer goods. However, even this process will permit of further capital formation. Since there is an increase in the output on consumer goods total consumption may still be kept constant by diverting to further capital formation part of the resources engaged in the production of consumer goods, or by diverting to the import of capital goods part of the exchange receipts hitherto utilised for the import of consumer goods.

The 'ploughing back' to investment of part of the increment to output that results from capital formation affords a technique of progressively increasing the total volume of investment *pari passu* with constant or even rising consumption levels. It is, therefore, a technique of considerable significance to poor countries. The financial counterpart to this process, however, is much the same as in the cases discussed before. The 'ploughing back' of an increment of output to capital formation would have to be financed by an equivalent increase of savings or of taxation if price levels are to remain unchanged. Where this condition is not satisfied the process could lead to inflationary pressures even though total consumption is constant or possibly rising. The scope for increased savings or increased

taxes would here too depend, in part, on the way in which the additional incomes are distributed. In an earlier section reference was made to the possible adoption by poor countries of labour intensive techniques as a means of maximising the returns to scarce capital. Such techniques usually involve, however, a somewhat diffused distribution of the additional incomes. They may for this reason make more difficult the task of financing a sizeable 'plough back' of given increases in total output.

THE MOBILIZATION OF IDLE RESOURCES

There remains to be discussed the mobilization of idle resources and foreign borrowing as possible sources of additional capital formation. Poor countries often have substantial resources of surplus manpower whose removal from existing activities, if any, would not reduce total output. Since the shortage of capital is one of the factors impeding the growth of output, there is the possibility of applying idle resources to the process of capital formation itself. Surplus labour, in other words, equipped with relatively simple implements could be set to the task of building capital in the form of roads, dams, canals, buildings, and other durable assets which eventually expand the productive base of the economy. Since idle resources are employed, the process would involve no costs in the sense of a sacrifice of existing output in other fields. Total consumption, for instance, need not fall since there need be no reduction in the output of consumer goods. At the same time, total real incomes would increase as additions are made to the nation's stock of durable assets.

When translated into financial terms, this process, like the others discussed above, would also require an increase in total savings or in taxation if inflationary pressures are to be avoided. But here too the increase in real incomes create, in a sense, a savings potential. The surplus manpower to be applied to capital formation would previously have subsisted on the produce of established spheres of activity. Their removal from these spheres would result in an increase in the real income of those who remain behind since total output has not fallen. If this increment to real income could be saved or taxed away it would finance the new investment and so sustain the consumption of those engaged in capital formation. But here again there is the familiar problem of the 'marketable surplus'. This is, essentially, a problem of exorting additional savings or taxes from small producers or peasants who are prone to devote an increase in incomes to additional consumption. Moreover, the surplus population now mobilized for capital formation are themselves likely to require a higher standard

of consumption than before. The financial problem is, for these reasons, likely to be somewhat more complex than would appear at first sight. Nevertheless, in so far as the so-called 'leakages' could be met by foreign borrowing or intensified taxation a given effort on this score would make possible a much larger volume of total capital formation.

Where a surplus population exists in the sphere of agriculture, it is possible to conceive of capital formation or even industrialisation independently of improvements in the productivity of agriculture. Where on the other hand no such surplus exists the release of resources from agriculture would depend on an improvement in agricultural productivity. The organisational problem of extracting a marketable surplus from agriculture to sustain the resources transferred out of it will, however, still exist. The problem may possibly be rendered more manageable if surplus manpower instead of being transferred physically out of the agricultural areas, is set to work on capital formation in these areas themselves. The institutional and social relationships which enable the surplus population to share in the produce of the agriculture regions may then remain; and the need to pay money incomes to those working on capital projects may thereby be reduced. This, in a sense, is the logic behind the so-called community benefit or rural development projects in which surplus rural labour is made available, on a voluntary basis, for work on capital formation of benefit to the rural areas themselves. The 'leakages' mentioned above are in this way somewhat reduced and may, in fact, be provided by way of a governmental contribution. The contribution is primarily an organisational one. If effectively handled it would afford a promising source of capital formation in poor countries.

FOREIGN BORROWING

We now come to borrowing from abroad as a means of securing resources for capital formation. Where the savings or the taxation problem proves intractable foreign borrowing may constitute the major alternative source of additional capital formation. Like some of the other methods discussed above foreign borrowing does not involve a reduction in consumption, but unlike these methods it provides, so to speak, its own finance. The urgency of foreign borrowing would, therefore, depend on the relative ease with which the financial requirements of the alternative methods could in practice be satisfied.

There is, however, one respect in which foreign investment tends to differ from local investment in its effects on the rate of development.

Foreign investment makes possible an early stepping up of the rate of capital formation and hence of the rate of output. But part of the additional output resulting from foreign investment has to be utilised for the servicing of foreign debt. It will, in other words, have to be remitted abroad in the form of interest, amortisation charges, profits and dividends. The scope for a progressive 'ploughing back' of increments to income is therefore somewhat limited ; yet this 'ploughing back' is one of the most potent of the forces of cumulative growth. It is true that a substantial re-investment of the profits of foreign investment is possible. But where the foreign investor is resident abroad, the rationale of this reinvestment is an expanded outflow of profits and remittances. On the side of skills and technology, however, the impact of foreign investment accompanied by 'know-how' can well be cumulative. The acquisition of these skills and knowledge by local entrepreneurs and technicians may make possible a marked expansion in the rate of growth. The pace of development is, thereby, quickened. There are several factors which, in practice, impede the flow of foreign capital into poor countries. But countries which stand in need of such capital may do well to create a sufficiently attractive environment.

Opportunities for Capital Formation

THE preceding pages were devoted to an analysis of the determinants of output and to a study of some of the factors governing the supply of capital. In this section some problems on the side of demand are briefly considered.

Although an increase in output often depends on an enhanced volume of capital formation it may not be possible to realise the latter in the absence of sufficient inducements or opportunities for investment. The factors which limit these opportunities for capital formation may be grouped into at least three categories. These are the paucity of natural resources, the absence of markets, and the absence of enterprise.

The inhibiting effects of a paucity of natural resources are fairly obvious and do not need elaboration. Such a scarcity of resources is sometimes a factor which explains the poverty of entire regions and communities. Nevertheless, it is seldom a complete explanation for there are often regions rich in natural resources, which yet remain poor. There can, in fact be little doubt that better equipment and more scientific methods could invariably improve the utility of given resources. The pattern of natural resources would, of course, play an important part in determining the type of development that can take place. The absence of certain types of

mineral resources, for instance, may rule out the possibility of new industries based on these resources. But even here examples are not rare of substantial domestic industries established on the basis of imported materials.

The paucity of markets is the second factor which is, perhaps, common to all poor countries. It could and does act as a serious drag on investment. It must, however, be emphasised that the paucity of markets is due more to the poverty of the people than to their smallness in numbers. Thus, even large countries with big populations often offer the poorest of markets.

There are two aspects to the problem of markets which may be separated out for discussion but which are, in fact, closely related. On the one hand, there is the relationship between the size of the market and the level of productivity, and on the other, the connection between the magnitude of the market and the technical scale of individual investments.

The magnitude of the market is determined, in essence, by the level of real income of the population. Where the latter is low, markets are small. The level of real income, however, is itself the result of the output of the workforce and this, in turn, is partly a function of the available stock of capital. The relationship is, in fact, circular for the paucity of markets is both a cause and a consequence of a low level of capital formation. This points to one conclusion. The problem of markets will probably solve itself once the initial stagnation is broken. But here a difficulty arises. An individual and isolated act of investment will not in itself create a market for its products since the incomes it creates are likely to be disposed of over a wide and varying range of goods. It is only a series of simultaneous investments over a broad field that would create the requisite demand for each other's products. Individual investments would in this way support each other for the increased incomes arising out of them will now provide the markets for their mutual output. The limitation of the paucity of markets would thus be overcome and the stage set for a cumulative process of expansion. A diversified investment programme is hence an important factor in the removal of market limitations.

The problem of the scale of individual investments in relation to the size of the market is closely connected with the factors discussed above. There may often exist a moderate market for a product which is customarily satisfied out of imports. On account of what has been called " technical discontinuities ", however, the optimum scale of operations in this field may require a productive unit which is too large in relation to the existing volume of local demand. Simultaneous investments over a wide field will,

as shown above, offer a way out of the problem. But the adoption of a technology which permits of a reduced optimum scale is also a possible solution. Efficient labour intensive techniques requiring a relatively small volume of capital and involving small productive units may possibly satisfy this latter criterion. This is, therefore, an added argument in their favour.

A few remarks on protection may be of relevance to a discussion of the problem of markets. In an open economy with sufficient price and wage flexibility to secure full employment the optimum allocation of resources will follow a pattern conforming to the principles of comparative cost and international specialization. Protective duties by distorting the cost-price structure would, in these circumstances, lead to a mal-distribution of resources. An exception is normally recognised in the case of nascent industries which take time to reach the point of minimum average costs. But apart from this, protective duties would serve only to frustrate the advantages of international specialization.

Where idle resources exist, however, the position may be somewhat different. Protective duties may make possible the utilisation of idle resources through the provision of markets for the latter's products. An increase in total output is, therefore, possible suggesting a case for a policy of protection. There are, however, distributional consequences to such a course. Protective duties—except where they contribute towards an improvement in the terms of trade—reduce the real income of the rest of the community in its capacity as consumers. This reduction in real income would, in fact, measure the " subsidy " from the rest of the community to the newly employed arising out of the policy of protection. It is, however, only the value of the output of the newly employed, less the value of this subsidy that measures the " true " increment, to total output. The total income of the newly employed is, in other words, higher than this true increment. This implies that although total output in the economy has increased one section of the community has benefitted by more than the amount of the increase whilst the remainder has been correspondingly " impoverished ". There is, however, a further aspect to the distributive relationship. Against the magnitude of the " impoverishment " of the rest of the community must be set off the gains accruing to the latter by way of relief from sustaining the unemployed. Where this exceeds the sacrifice entailed by the subsidy, the rest of the community too may be better off.

The problem as set out above, however, conceals the likelihood of distributive changes within the rest of the community itself. The consumers of the protected commodity and those who support the unemployed may be different individuals or classes. The losses to one group through a policy of protection may, therefore, result in gains to quite different groups. There

is a further point. The argument above does not constitute a case for indiscriminate protection. For a given volume of new employment, the larger the subsidy element required the greater the possible losses to the rest of the community. A policy of protection must obviously aim at chosing fields of activity where for any given degree of protection the increment to output and employment is greatest.

There remains the absence of enterprise as a factor limiting the opportunities for capital formation. Although it often eludes strict analytical treatment enterprise merits a place of central importance in any discussion of the problem of development. Indeed, the entire process of economic growth is sometimes written in terms of the active, innovating and creative abilities of enterpreneurs. The factors determining the existence or the quality of enterprise are intangible and complex ; they cover the entire fabric of society including its history and traditions, its laws and conventions, and its attitudes to life and work. An analysis of these factors is outside the scope of this discussion. One generalisation may, however, be in place. Enterprise like many of the other determinants of development feeds upon itself. It comes forth more readily in an environment of growth and expansion than in an atmosphere of stagnation and decay. There is perhaps no single factor which uniquely determines the first link in the chain of causation. Dynamic social groups or individuals, energetic governments, foreign concerns, each of these may pioneer the initial stages of the process of expansion. If there is, indeed, a factor common to all, that factor is perhaps a dominant will to progress.

Development and the Cyclical Process

THE discussion in the foregoing pages has abstracted from the cyclical process. The problem of growth was expressed in terms of a continuous and regular progression reflecting, perhaps, a variety of causal relationships. Such an approach is not without merit since it helps to lay bare the underlying issues which determine long term change. Nevertheless in the real world growth is seldom regular or continuous. It is accompanied by intermittent and irregular fluctuations, by alternating phases of greater and lesser activity.

Two broad ways in which cyclical changes relate to the process of growth might, perhaps, be mentioned. On the one hand, cyclical changes condition the investment efforts of the community. Phases of intensified investment activity tend to occur in periods of boom and prosperity whilst a slackening of such activity corresponds with periods of recession. The

process of growth may thus take the form of cyclical movements around an upward trend. Capital formation, in other words, is sensitive to the availability of both resources and markets and is apt, to emerge when these are buoyant. Cyclical movements, of course, may themselves be fed on variations in investment activity but changes in the latter would take place even where the cycle was independently or externally determined.

The second type of relationship concerns the structural properties of the economy. Investment patterns of a certain kind may produce a type of growth which reduces the impact of cyclical changes. This, in essence, is the logic of the case for diversification in open economies dependent on the export of primary products. Where instability is a serious weakness of the economic structure, the requirements of diversification may be added to the other criteria which govern the distribution of capital resources. Diversification would not, of course, mean in this context, the diversification of export produce. This would only safeguard against secular or structural changes in individual commodities. What is really implied is a balanced growth leading to an expansion of the share of the domestic sector in the national income.

CHAPTER 2

THE TECHNIQUE OF PROGRAMMING

Introduction

THE preceding chapter sought to lay bare the basic relationships which condition and determine a process of development. The aim of the present chapter is to consider the scope for utilising some of the concepts set out earlier for the purposes of conscious planning for development.

An underlying assumption in the discussion that follows is that there is, in fact, a need for planning. In poor countries this assumption could be based on at least three factors. The first is, simply, the very existence of poverty and economic backwardness and a desire to eradicate them; the second, the absence of any signs of a spontaneous process which promises to overcome these problems within a satisfactory period; and the third, the present and potential importance of Governmental policies and outlays in the life and growth of a nation's economy. There are, of course, a host of other factors as well. But the three mentioned above would themselves suffice to justify conscious planning provided always that the latter could succeed in bringing about a more effective use of the nation's resources.

It should be noted that the sort of case as set out above differs somewhat in emphasis from the normal arguments in favour of planning in advanced countries. In the latter the problem is generally expressed less in terms of growth and development than of conflicts between private and social objectives in the use of existing resources. The concept of planning in the advanced countries has for this reason tended to become associated with policies of control and regulation which restrict the free working of markets and confine the operations of private enterprise. Planning in poor countries could, of course, adopt a similar approach. But this is not inherent in the concept. It is, in fact, possible that the rationale of planning is eventually to extend the area of private enterprise through the creation of the necessary conditions for such an expansion. The actual approach adopted would depend on the policies and objectives of the State. The process of planning is merely an instrument for the attainment of these objectives.

The succeeding discussion is devoted to problems concerning the techniques of planning or programming. Whilst a substantial volume of specialised literature exists on questions relating to the need for planning,

there has unfortunately been but little discussion of the theoretical and practical problems involved in the specific tasks of programming, particularly, in mixed economies. An obvious reason for this is that the practice of programming has been a relatively recent phenomenon and that techniques themselves are in a process of evolution. The analysis below is, therefore, in itself of an exploratory nature. It seeks only to chalk out the broad outlines of a possible technique of programming and to provide in this context a purely illustrative framework of growth.

It has been found helpful to illustrate the subsequent analysis in terms of a series of magnitudes. The magnitudes used, in many cases, have been chosen from the statistical data relating to the economy of Ceylon. In this connection a note of caution is of special importance. The exercises presented here seek no more than to provide, for purely illustrative purposes and on the basis of a number of simplified assumptions, a broad indication of some of the magnitudes that may be involved in a process of growth. Data relating to Ceylon have been chosen partly to bring out the scope and limitations of the technique of programming itself in the background of actual problems, and partly to provide realistic dimensions wherever possible.

The purpose of the exercises that follow is, therefore, merely to explore the possibilities of programming for long-term growth. These exercises seek to set out the type of problems that a technique of programming would encounter and to consider the possible lines along which these problems may be solved. They are not intended, in any sense, to represent either the outlines of an actual programme for Ceylon or even a rough forecast of the probable course of future development.

It must also be emphasised that the six-year programme of investment in the public sector presented in the earlier parts of this volume has not been drawn up on the basis of the techniques outlined here. Such a course would certainly have been premature. A number of conditions have to be satisfied before the preparation of actual plans and projects could be based on the type of overall programming outlined in this section. The programming techniques themselves would have, first, to be developed and refined; the statistical information they require would have to be collected and organised on a sound basis; and the administrative, technical, and organisational machinery needed for the translation of the overall goals and objectives into specific projects will have to be established. These conditions can only be satisfied over a period. The discussion in these pages seeks only to single out the elements of a more advanced approach to programming and, in a limited way, to prepare the ground for a maturing of the planning process.

Processes in the Technique of Programming

IT is necessary at the outset, to distinguish between the basic processes involved in the preparation of an integrated plan of development. The first is the determination of the overall aspects of the plan including the global magnitudes of its various components. The second is the translation of these magnitudes into individual projects and schemes. The former is, primarily an economic and statistical exercise, whilst the latter is, largely, a technical process. This chapter is concerned exclusively with the first of these exercises. In practice, however, the processes are interlinked. The global magnitudes actually set out may need revision to suit technological possibilities. Technical designs may in turn require adaptation to conform to the overall dimensions. A process of mutual adjustment is, therefore, involved. But this aspect of the problem is not discussed in the pages that follow.

The task of determining the overall aspects of a plan is itself made up of three processes. First, there is the making of decisions on basic goals and objectives; second, an assessment of the relevant magnitudes of those factors which are amongst the major determinants of these goals; and third, a resolution of these magnitudes into their component parts so as to provide a basis for the formulation of specific projects. The main sections of the succeeding discussion correspond broadly with each of these processes.

I. BASIC GOALS AND OBJECTIVES

Planning has necessarily to be undertaken in terms of certain goals and objectives. The more specific these are the easier task of programming. The formulation of objectives, however, is not a simple task. The objectives must be of a kind that find general acceptance. They must also be well defined and mutually consistent. In periods of crisis or war it is relatively easy to resolve the problem of objectives. All programmes and policies could be geared to one over-riding aim which finds universal acceptance. On the other hand, in normal times the issues are somewhat more complex. A multitude of competing goals are usually present and there may not be a unanimity of opinion on the proper order of precedence.

It is true that there is in poor countries at least one dominant factor which lends an element of simplicity to the problem. This factor is the very existence of poverty itself. The overall objective of planning in poor

countries may be expressed in terms of the removal of poverty and the improvement of living standards. But the simplicity of even this broad objective is illusory. There are a host of other objectives and goals which are also possible. Some of these may be consistent with the general objective but others may not. An improvement in living standards means, in the last analysis, an improvement in the output of consumer goods. But a number of decisions still remains to be made. What preference should there be, for instance, between a small improvement in consumption at an early stage as against a larger improvement later on ? To what extent should the objective of increasing output be sacrificed to certain other desirable goals of policy ? These goals may include the maximisation of employment, the better distribution of incomes, the diversification of the economy, the establishment of productive units on a small scale, and so on.

For the purposes of the illustrative exercises in this chapter, the problem of objectives has been decided on in terms of increasing total output. There are at least three reasons to favour such a course. First, there is a sense in which the problems of poverty and low living standards are fundamental. Perhaps all the other objectives mentioned above would possess little value if their realisation involves the continuation of low living standards. Second, some of the objectives above are in the last resort expedients for providing adequate incomes for those who are denied such incomes. Such a task would be rendered more easy in the context of a rising volume of output. Third, a decision in terms of increasing output will conform to the analytical approach adopted in the preceding section. The concepts and relationships established there would thus afford a basis for the application of programming techniques. The maximisation of employment, the better distribution of incomes, diversification, and other objectives will be treated here as subsidiary goals. They would, in other words, be provided for to the extent that they do not conflict with the basic objective.

On the basis of the above decision it is possible to restate the overall objective in terms of an increase in real national income. Specific magnitudes could then be ascribed to indicate the extent of the desired increase. Thus it is possible to express the overall objective in terms of a doubling or a trebling of national income. A further refinement may be introduced. In conditions of population growth the desirable objective is not simply to increase national income but to increase it at such a rate as to outstrip the expansion in population. This would involve a raising of per capita income. The overall goal could be formulated to take account of this factor. It could, in fact, be expressed in such terms as a doubling

or trebling of per capita incomes. In conditions of a growing population this would imply more than a doubling or trebling of total national income.

The foregoing objectives could be translated into the magnitudes relevant to Ceylon. The gross national income of Ceylon in 1954 has been estimated to be in the neighbourhood of Rs. 4,500 million. The population estimate for the same year is 8,366,000 persons. Per capita income in that year was therefore Rs. 538. Population, however, has been growing in recent years at an annual rate of about 2.8 per cent. There are several factors which virtually make certain a continued increase in population over the near future. The objective of, say, doubling per capita incomes would therefore involve a progressive expansion in total national income.

The magnitude of the necessary expansion in total national income would depend on the future course of population. An estimate of population growth is, therefore, needed. An attempt has been made for the purposes of this chapter to arrive at a tentative population projection. Several problems are involved in a calculation of this nature. A simple projection on the basis of actual trends over a given period in the past is hardly satisfactory on account of the existence of a number of variable factors which influence population growth. The estimates presented in Table 1 below, are based on a somewhat different approach where an attempt has been made to take account of some of these factors. These estimates are themselves approximations.

Three series of population estimates have been made. One is a high projection which may possibly be representative of a maximum rate of growth. For this purpose it was assumed that the basic birth rate would rise by about 12.5 per cent. between the years 1955 and 1985. The death rate was expected to decline and the expectation of life which was about 58.5 years in 1955 was assumed to rise to about 70 years in 1985. On the basis of approximate measures of survival values the survivors in 1960, 1965 and so on up to 1985 were then estimated. The second population series is a low projection which may represent a minimum rate of growth. In this case it was assumed that the basic birth rate would decline by about 37.5 per cent. between the years 1955 and 1985. The death rate was again expected to decline and the expectation of life was assumed to rise to about 65.7 years in 1985 from 58.5 years in 1955. The third series which is an average between the high and the low projection provided the tentative basis for the subsequent exercises below. In all three projections the influence of migration was ignored since it had been negligible in the past few years. The results of the above projections are shown in the following table.

TABLE I

Population Projections, 1955–1985

('000)

Year	H. P.	L. P.	M.P.	Year	H. P.	L. P.	M. P.
1955	8,576	8,576	8,576	1971	13,624	12,662	13,143
1956	8,840	8,825	8,832	1972	14,057	12,939	13,498
1957	9,103	9,073	9,088	1973	14,491	13,216	13,853
1958	9,367	9,322	9,344	1974	14,924	13,493	14,208
1959	9,631	9,570	9,600	1975	15,357	13,771	14,564
1960	9,894	9,819	9,856	1976	15,898	14,070	14,984
1961	10,198	10,071	10,135	1977	16,440	14,370	15,405
1962	10,502	10,324	10,413	1978	16,982	14,670	15,826
1963	10,806	10,577	10,692	1979	17,524	14,969	16,247
1964	11,110	10,830	10,970	1980	18,066	16,269	16,667
1965	11,413	11,083	11,248	1981	18,752	15,588	17,170
1966	11,769	11,344	11,556	1982	19,439	15,906	17,672
1967	12,125	11,604	11,864	1983	20,125	16,225	18,175
1968	12,480	11,864	12,172	1984	20,812	16,543	18,678
1969	12,836	12,124	12,480	1985	21,499	16,862	19,180
1970	13,191	12,384	12,788				

H. P. = High Projection.
L. P. = Low Projection.
M. P. = Medium Projection.

Source : Statistician, Registrar-General's Department.

Given the magnitude of the increase in population it is, of course, easy to estimate, for each year, the parallel magnitudes of national income which satisfy the condition that 1954 per capita income is doubled. The results of this are shown in Table 2 below :

TABLE 2

National Income Consistent with a Doubling of 1954 Per Capita Income

(Rs. million)

Year	National Income based on High Projection	National Income based on Low Projection	National Income based on Medium Projection
1955	9,228	9,228	9,228
1956	9,512	9,496	9,504
1957	9,794	9,762	9,778
1958	10,078	10,030	10,054
1959	10,362	10,298	10,330
1960	10,646	10,564	10,606

TABLE 2—*contd.*

(Rs. million)

Year	*National Income based on High Projection*	*National Income based on Low Projection*	*National Income based on Medium Projection*
1961	10,974	10,836	10,906
1962	11,300	11,108	11,204
1963	11,628	11,380	11,504
1964	11,954	11,654	11,804
1965	12,280	11,926	12,102
1966	12,664	12,206	12,434
1967	13,046	12,486	12,766
1968	13,428	12,766	13,098
1969	13,812	13,046	13,428
1970	14,194	13,326	13,760
1971	14,660	13,624	14,142
1972	15,126	13,922	14,524
1973	15,592	14,220	14,906
1974	16,058	14,518	15,288
1975	16,524	14,818	15,670
1976	17,106	15,140	16,122
1977	17,690	15,462	16,576
1978	18,272	15,784	17,028
1979	18,856	16,106	17,482
1980	19,440	16,430	17,934
1981	20,178	16,772	18,474
1982	20,916	17,114	19,016
1983	21,654	17,458	19,556
1984	22,394	17,800	20,098
1985	23,132	18,144	20,638

The general objective of increasing output can now be stated in terms of the magnitudes presented above. The overall goal is not, of course, to produce a total national income of the order indicated in the table in each of the years shown there. This would be quite unrealistic. The goal is, in fact, to create a rate of expansion which would at some point of time produce a national income corresponding to that shown in the table. The actual point of time at which this condition is satisfied will depend on the effort that is made. The next task in the exercise is, therefore, to estimate the magnitude of the effort that is practicable for this purpose. This involves an estimate of the possible dimensions of the determinants of an increase in total national income.

II. DETERMINANTS OF AN INCREASE IN NATIONAL INCOME

The major determinants of national income were considered in some detail in the first chapter of this part. They were—the terms of trade, the higher utilization of the existing capital stock, improvements in methods of work

and capital formation. The importance of changes in the terms of trade to a country like Ceylon was specially underlined. The uncertainty of this factor, however, presents a serious problem. All efforts to achieve a given increase in total national income may be frustrated in the event of a serious deterioration in the terms of trade. On the other hand, an improvement of the terms of trade may facilitate the attainment of given objectives. The difficulty of forecasting changes in the terms of trade introduces the first important limitation to the technique of programming. The exercises that follow have necessarily to abstract from such changes. It would not be realistic to do more than to postulate that the appraisal of the effort required to attain given objectives is subject to modification in either direction in accordance with changes in the terms of trade.

The higher utilization of the existing capital stock is, as we have seen, largely associated with the cyclical processes. There are, however, two reasons which justify the exclusion of this factor from the exercises here. First, changes in the degree of utilization are perhaps of more relevance to short-term changes in income than to the problem of long-term growth. Second, the cyclical process itself has been abstracted from all the exercises in this section. These exercises could be interpreted in either of two ways—as assuming the absence of cyclical fluctuations or as representing a trend where fluctuations have been smoothened out.

Improvements in methods may be treated in any of three ways. They could be assumed away ; or a given share of the increase in national income may be imputed to them ; or they may be incorporated into the concept of capital formation. There is some justification for the latter course. Improvements in methods are seldom in practice wholly dissociated from changes in equipment. Their absorption into capital formation would merely enhance the capital-output ratio and thereby make easier the attainment of given objectives.

Capital formation then remains, for the purposes of these exercises, as the sole determinant of an increase in national income. The relationship between the volume of capital and output has already been discussed and need not be elaborated upon here. In the pages that follow an increase in output will be regarded as being solely dependent on an increase in the volume of capital. The effort required to attain a given output would then be measured by the volume of capital formation needed. On the basis of this relationship the question to be answered could be put in one of two ways—(*a*) what would be the volume of capital formation needed to attain by any given year the desired level of total national income ; or (*b*) what period of time is required to attain the desired level of national income on the basis of a given volume of capital formation?

Two further magnitudes are required to answer either of these questions. These are, first, a measurement of the relationship between capital and output, or the so-called capital-output ratio, and second, a measurement of the time lag involved between the act of investment and the resulting increase in output. The magnitudes to be employed for the purpose of the exercise here are discussed below.

The capital-output ratio: since an increase in output is regarded as a sole function of an increase in capital, it is necessary to estimate the amount of additional capital needed to secure a given increase in output. The measurement of the capital-output ratio presents the second of the serious difficulties confronting the technique of programming. Two problems, in fact, exist. The quantitative relationship between capital and output depends on technology. Yet the course of future technology is unpredictable specially over long periods. Moreover, the capital-output ratio tends to vary between different spheres of investment. Hence, the amounts of capital required to produce a given output in the future would depend on the composition of that output.

For the purposes of the illustrative exercises in this chapter an average ratio, based on certain rough estimates, is used for the economy as a whole. This ratio is assumed to remain constant over time. The limitations imposed by this approach must always be borne in mind. There is, of course, little that can be done about changes in the average capital-output ratio brought about by changes in future technology. But a more refined approach could possibly take account of those changes which arise out of alterations in the pattern of output accompanying a process of expansion.

A working assumption on the magnitude of the capital-output ratio may be gathered from three sources. There are, first, estimates made for other countries. But unfortunately many of these relate to advanced and industrialized economies. It has been suggested that the capital-output ratio in industrialized economies tend to be more favourable than in underdeveloped countries. There is a scarcity of basic " overhead " capital in the latter, which makes a given output dependent on a substantial investment. This was the reason which prompted the I. B. R. D. Mission to suggest in its Report a capital-output ratio for Ceylon of 4 : 1 as against 3 : 1 for the advanced countries. There are, however, factors which tend to operate in the other direction. It is true that a number of spheres exist, particularly in manufacturing, where the capital-output ratio is likely to be unfavourable in poor countries for the reasons stated above. At the same time, the importance to output of improved methods combined with small additions to capital cannot be overlooked. This is a factor which is likely to be of

some significance in the early stages of growth and which would favour an improved capital output ratio. This explains, perhaps, some of the favourable assumptions that have been made in the case of certain other countries and regions. Thus a capital-output ratio of 3 : 1 has been assumed for India in the First Five-Year Plan ; whilst a ratio of 1.5 : 1 for the second five-year period is implicit in the draft framework recently published. A capital-output ratio of 2.5 : 1 has been suggested for the Latin American region in a study by the Economic Commission for Latin America. These estimates suggest, perhaps, the rough boundaries of a figure for Ceylon.

The second method is to estimate the existing relationship between capital invested and annual output in the major spheres of the economy. The statistical data available in Ceylon do not, unfortunately, permit of detailed estimates of this nature. But certain very rough estimates based on existing data have been made. They reveal the following : A weighted ratio of 1.7 : 1 for all manufacturing industries is indicated by the data presented in the census of industry. A ratio of 3.6 : 1 for paddy is suggested by comparative estimates of the values of capital assets and of annual output. A ratio of 1.5 : 1 is suggested by similar estimates for tea and rubber. Ratios of 3.5 : 1 and 3 : 1 are indicated for the Railway, and other forms of transport respectively. A weighting of these sectoral ratios in accordance with the value of output gives an overall ratio of 2.1 : 1. The coverage of these estimates, however, is not complete. Thus the coconut industry and construction have been excluded for want of data. Moreover, estimates of this nature suffer from one limitation. They cover the returns to the existing capital stock, rather than to future increments. There is no assurance that the same relationship would prevail for future additions to capital.

The third method is of an overall nature. It is based on historical data and compares changes in total capital formation with changes in total national income. But even this method has its limitations. It depends on the existence of reliable national income data ; it involves the elimination of that part of the changes in income not caused by additional investment : and it requires a realistic assumption concerning the average time lag. A rough estimate for Ceylon based on existing national income data was made. Calculations of total national expenditure at constant prices rather than of total national output were available. A correction had, therefore, to be made to the former figures for changes due to the terms of trade. The course of national output at constant prices was thereby derived. This series was then compared with the data of capital formation at constant prices on the basis of an assumed time lag. A correction for causal factors other than the terms of trade was not, of course, possible. The average time lag assumed was two years as in the case of India's First Five-Year

Plan. It is difficult to arrive at a realistic assumption but it is possible that the relatively short lags involved in manufacture, in annual agricultural crops, and in construction, offset the longer lags in the case of export staples and certain public sector investments. The results of the calculation made on these lines suggested a capital-output of 2.3 : 1. Total gross domestic capital formation during the period 1947-51 at constant prices was Rs. 559 million, whilst the corresponding increase in gross national output during the period 1949-53 was Rs. 241 million.

In the exercises to follow a hypothetical capital output ratio of 2.5 : 1 has been assumed. This would represent a fair approximation to the respective magnitudes suggested by the various sources discussed above. The importance of this assumption to the estimates made below must be emphasised. A change of assumption could make a significant difference to the results that are finally obtained.

With the use of the capital-output ratio and the assumed time lag it is possible directly to answer the first of the questions raised earlier, viz., what would be the volume of capital formation needed to obtain by any given year the desired level of total national income?

Take, for example, the three future years 1964, 1974, and 1984. The desired totals of national income in each of these years which, in the background of medium population growth, satisfy the condition that per capital incomes are double are Rs. 11,804 million, Rs. 15,288 million, and Rs. 20,098 million respectively. The parallel magnitudes of capital formation required to attain these objectives and other related data are shown in Table 3 below :—

TABLE 3

Investment Requirements and Income Objectives

(Rs. million)

I	*II*	*III*	*IV*	*V*
Year	*Desired National Income*	*Increase over 1954 Level*	*Total Capital formation required over period of Investment*	*Average Capital formation per year over period of Investment*
1964	11,804	7,304	18,260	1,826
1974	15,288	10,788	26,970	1,349
1984	20,098	15,598	38,995	1,300

The figures above reveal the magnitude of the effort that would be required to attain the given objectives in each of the three years selected. The total of net capital formation needed over the period of investment as a whole is shown in Column IV. The period of investment for each of the objectives is, on the basis of the assumed time lag, ten years (1952-1962), twenty years (1952-1972) and thirty years (1952-1982) respectively. Column V averages the totals of capital formation over the investment periods involved. This does not, of course, imply that actual capital formation in each year of these investment periods should conform to the average level. The overall total of capital formation could be attained by a progressive stepping up of investment in each successive year. Column V only shows the average annual effort required over the period as a whole.

The estimation of the effort required to reach given objectives leads to the second of the questions set out earlier, viz., what magnitudes of capital formation out of domestic resources are likely to be practicable and what period of time would be required on the basis of these magnitudes to attain the desired objective ?

In Chapter I of this part, two sources of resources for capital formation were indicated. These were a reduction in consumption on the one hand and increments to output on the other. The magnitude of capital formation practicable would, therefore, depend on the possible dimensions of these sources. There is, of course, no way of estimating the amount by which total cosumption can be reduced. But since per capita consumption is already low in Ceylon, the exercises here ruled out the possibility of a further reduction in total consumption. This implies that the boundaries to the possible magnitude of capital formation are already established. Increments to total income would now remain the sole source of capital formation. The size of the former limits the magnitude of the latter.

There is, however, a further limitation. In conditions of a rising population an unchanged quantum of total consumption would lead to a progressive fall in consumption per head. If this were to be avoided it would not be possible to devote annually to capital formation the entire increment to national income. A part of this increment would have to be devoted to consumption so as to prevent per capita consumption from falling. Total consumption instead of remaining constant will then rise. A second limitation to the practicable magnitude of capital formation is now established.

Only that part of an increment to incomes which remains after providing for the maintenance of per capita consumption could be devoted to capital formation. The residue would be absorbed into an increase in total consumption.

It may be thought desirable to provide, not for the mere maintenance of the present level of per capita consumption, but for a moderate increase. In such a case a still further limit is set to the possible magnitude of capital formation. Once the extent of the permitted increase in per capita consumption is decided upon the dimensions of the required quantum of capital formation could be estimated. In the illustrative exercises to follow two conditions define the possible magnitude of capital formation. First, a moderate increase in per capita consumption of one per cent. is provided for the first ten years. This limit is thereafter reduced to half per cent. for the years that follow in view of the relatively higher levels of consumption obtaining at the end of ten years. Second, the half per cent. limit is only maintained until net capital formation reaches 25 per cent. of national income. A progressive increase in per capita consumption does thereafter become possible. The limits of one per cent. and half per cent. to improvements in per capita consumption during the initial stages is imposed in order to attain the desired national income goal relatively early. These limits are relaxed after net investment reaches 25 per cent. of national income. Such a level of investment is comparable to levels reached by other advanced countries during periods of rapid growth. It signifies, in a sense, a transition from a state of economic backwardness to a state of cumulative growth.

The results of the calculation based on the above assumptions are presented in the table below. The level of gross capital formation in the initial year 1954 suggested by the national income estimates has been taken to be around Rs. 529 million. A recent survey undertaken by the Taxation Commission indicated that net investment constituted perhaps 85 per cent. of gross investment. Net investment in 1954 on this proportion would be approximately Rs. 450 million. For subsequent years too a proportion of annual output amounting to 15 per cent. of each year's gross investment has been consistently set aside to cover depreciation. Once the initial magnitude of net investment is established the course of each of the other variables in the system could be estimated on the basis of the limiting assumptions set out above. The figures in table 4 below indicate the course of the major components of the national income aggregates over a period of 30 years.

TABLE 4

Illustrative Model of Income Flow

Year	*Per Capita Consumption (Rs. per Year)*	*Aggregate Consumption (Rs. million)*	*Depreciation (Rs. million)*	*Net Investment (Rs. million)*	*National Income (Rs. million)*
1954	475	3,971	79	450	4,500
1955	480	4,116	85	479	4,680
1956	485	4,284	86	490	4,860
1957	490	4,453	90	509	5,052
1958	495	4,625	93	530	5,248
1959	500	4,800	98	554	5,452
1960	505	4,977	103	584	5,664
1961	510	5,169	108	609	5,886
1962	515	5,363	114	643	6,120
1963	520	5,560	121	683	6,364
1964	525	5,759	129	733	6,621
1965	528	5,939	143	812	6,894
1966	531	6,136	158	893	7,187
1967	534	6,335	177	1,000	7,512
1968	537	6,536	200	1,133	7,869
1969	540	6,739	229	1,301	8,269
1970	543	6,944	267	1,511	8,722
1971	546	7,176	310	1,756	9,242
1972	549	7,410	365	2,071	9,846
1973	571	7,911	396	2,241	10,548
1974	601	8,532	427	2,417	11,376
1975	632	9,204	460	2,608	12,272
1976	663	9,929	496	2,814	13,239
1977	695	10,711	536	3,035	14,282
1978	730	11,556	578	3,274	15,408
1979	767	12,467	623	3,532	16,622
1980	807	13,449	672	3,811	17,932
1981	845	14,509	725	4,111	19,345
1982	886	15,652	783	4,434	20,869
1983	929	16,685	844	4,784	22,513
1984	975	18,215	911	5,161	24,287

It is now possible with the figures shown above to answer the question set out earlier in this section, viz., the period of time required to attain the overall objectives of doubling 1954 per capita national income on the basis of the given magnitudes of total investment. Table 5 below indicates the period of time over which the objectives would be attained.

TABLE 5

Date of Attainment of Over-all Objectives

Year	*National Income consistent with a doubling of 1954 Per Capita Income (Rs. Million)*	*National Income in the Model (Rs. Million)*	*Medium Population Projection ('000)*	*Per Capita Income according to the Model (Rs.)*
1954	9,000	4,500	8,366	538
1955	9,228	4,680	8,576	546
1956	9,504	4,860	8,832	550
1957	9,778	5,052	9,088	556
1958	10,054	5,248	9,344	562
1959	10,330	5,452	9,600	568
1960	10,606	5,664	9,856	575
1961	10,906	5,886	10,135	581
1962	11,204	6,120	10,413	588
1963	11,504	6,364	10,692	595
1964	11,804	6,621	10,970	604
1965	12,102	6,894	11,248	613
1966	12,434	7,187	11,556	622
1967	12,766	7,512	11,864	633
1968	13,098	7,869	12,172	646
1969	13,428	8,269	12,480	663
1970	13,760	8,722	12,788	682
1971	14,142	9,242	13,143	703
1972	14,524	9,846	13,498	729
1973	14,906	10,548	13,853	761
1974	15,288	11,376	14,208	801
1975	15,670	12,272	14,564	843
1976	16,122	13,239	14,984	884
1977	16,576	14,282	15,405	927
1978	17,028	15,408	15,826	974
1979	17,482	16,622	16,247	1,023
1980	17,934	17,932	16,667	1,076
1981	18,474	19,345	17,170	1,127
1982	19,016	20,869	17,672	1,181
1983	19,556	22,513	18,175	1,239
1984	20,098	24,287	18,678	1,300
1985	20,638	26,201	19,180	1,366

It will be seen from the table above that on the basis of the assumptions set out for these exercises the overall objectives of doubling 1954 per capita

national income is attained in the year 1980. It involves, in other words, a period of 26 years or roughly a generation. During this period there is, notwithstanding the growth of population, a rise in per capita consumption and hence the standard of living. Total national income at the end of the period is almost quadrupled and total investment maintained at levels comparable with those of other expanding economies. A basis for continued expansion in the future is, therefore, established.

A graphical illustration of the above model, similar to that published in the First Indian Five-Year Plan, is possible. This is shown in the chart opposite.

III. COMPONENTS OF OUTPUT AND INVESTMENT

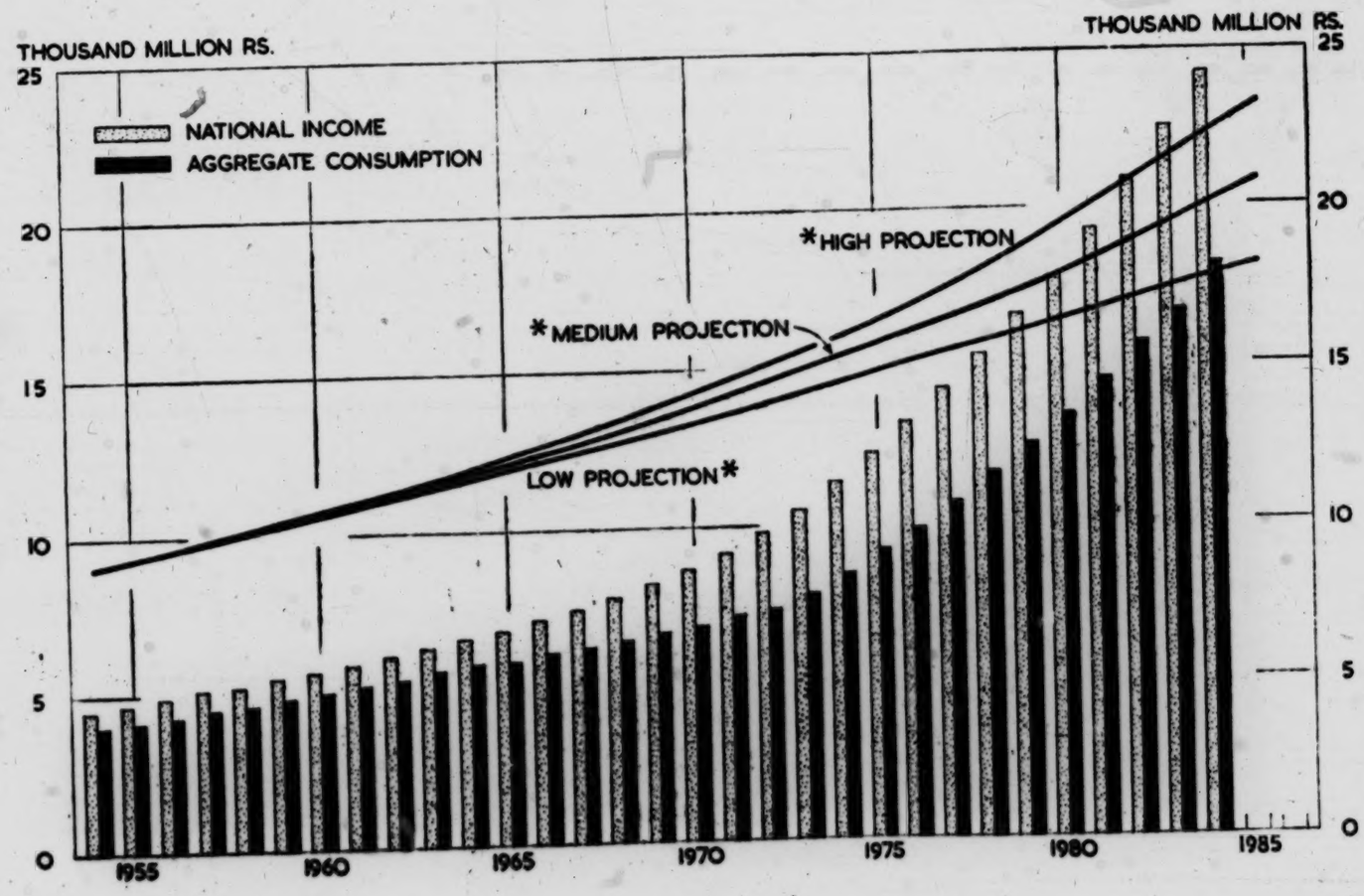
The estimation of the time required to attain the given objective and of the magnitude of capital formation involved in the process merely constitutes a stage in the task of programming. These factors do not in themselves make up an overall programme. Further exercises are needed for this purpose. The magnitudes concerned have, in the last analysis, to afford a basis for the formulation of specific projects and plans. They must, therefore, be resolved into their component parts so as to indicate, at least broadly, the types of output and investment required.

In the illustrative model of the preceding section the objective of doubling per capita incomes was attained by the year 1980. In this year total national income was Rs. 17,932 million. Total consumption Rs. 13,449 million and total capital formation Rs. 4,483 million. The increase of annual national income from the year of commencement 1955 to 1980 was Rs. 13,252 million. The total quantum of capital formation required over the period to produce this result was Rs. 33,130 million.

The question that now arises concerns the composition of this quantum of total capital formation. In other words, the specific fields into which this investment must flow have to be determined. This would reveal, so to speak, the necessary order of priority between different spheres of investment and afford a basis for the formulation of investment projects.

It would be apparent that the problem above would be "solved" if the composition of the enhanced national output could be determined. It is to this latter aspect, therefore, that we must now turn.

THE COURSE OF INCOME



* National income consistent with a doubling of 1954 per capita income on the basis of population increase.

Planning Secretariat 1955.

Block by Survey Dept. Ceylon

In the year 1980, the year of the attainment of the overall objective, total national income is approximately Rs. 17,932 million. At this level of national income what would be the broad pattern of output ? The answer involves an estimation of the pattern of future demand. It is not, of course, necessary for the forecast of demand to cover the whole of the twenty-six-year period. The overall programme could be sub-divided into convenient phases and the pattern of demand estimated for at least the early ones. But these phases must be long enough to take into account projects with a relatively extended period of gestation. The assumed time lag of two years is, after all, only an average.

The problem of forecasting future demand is, perhaps, the third of the major limitations to a technique of programming. Changes in the pattern of future demand could arise out of at least three factors. These are a change in tastes, a change in relative prices, and a change in the volume and distribution of incomes. There is hardly an effective method for handling future changes in tastes. Forecasts of the response of demand to changes in relative prices require a knowledge of both the future course of prices and the shape of the demand curves of individual commodities. Neither of these factors could, therefore, be taken into the reckoning. What remains is a change in demand due to changes in the volume and distribution of incomes. A rough attempt to handle this factor, assuming always that the other two factors remain unchanged, is made below. But the limitation of even this method would be readily apparent.

A basis for estimating changes in demand arising out of a change in the volume and distribution of incomes would be afforded by data on the existing expenditure patterns of different income groups. Such data would reveal, for instance, the change in the probable pattern of demand of persons who are shifted from, say, the lower income groups to the higher income groups. The change in the volume of total incomes in any given year is indicated in the model above. If the distribution of these incomes is also known, a rough estimate of the probable pattern of demand could be made.

A broad indication of the spending habits of various income groups in Ceylon is provided by the Survey of Consumer Finances conducted by the Central Bank of Ceylon. This offers a rough basis for estimating the aggregate pattern of demand at higher levels of total incomes, provided tastes and relative prices remain constant. An assumption has, however, to be made concerning the distribution of the higher level of total income. One or more specific patterns of income distribution may, of course, be implicit

in the model if personal savings were the sole source of finance for the total of investment. The distribution of income must in this case be such as to permit of the necessary quantum of savings. In fact, however, there are also likely to be other sources of finance like revenue surpluses and corporate savings. A pattern of income distribution cannot therefore be simply derived from the investment totals. Nor is it possible to arrive at a system of income distribution from employment patterns since these are themselves dependent on the composition of output. Income distribution must, for these reasons, be treated as an independent variable which can be consciously influenced by policy. Once the desirable distribution of incomes is decided upon, the pattern of consumer demand arising out of it could, subject to the other limitations mentioned above, be broadly determined.

For purely illustrative purposes an attempt is made below to resolve the components of total consumption as postulated by the model. A period of twelve years has been chosen as a basis. The longer the period the greater the hazards which confront forecasts of this nature. Too short a period, on the other hand, will not prove of help in formulating specific projects.

The figures below, it must be emphasised again, are subject to all the limitations mentioned above. They are subject, in addition, to whatever limitations there are in the basic data provided by the Consumer Finance Survey. Their purpose here is wholly illustrative. They are introduced in order to indicate the type of calculation that may be necessary in an attempt to formulate an overall long-term plan. The figures below must not be taken in any sense to represent a serious forecast of the course of future demand in Ceylon. Their magnitudes are in essence derivatives from the other assumptions and results of the general model.

The estimates presented below have entailed a series of calculations. The elements of the process, however, were, first, to adjust the 1953 survey data to the 1954 totals of income and consumption used in the model; second, to arrive on the basis of a number of qualifying assumptions and decisions at a hypothetical distribution of the total personal consumption shown by the model for the year 1966; and third to apply to the distribution so derived the pattern of spending revealed by the consumer finance data. The results of this latter process are then aggregated to show the totals of the various components of consumer demand for the economy as a whole. Table 6 reveals the totals of consumption for the year 1954, Table 7 the corresponding totals for 1966, and Table 8 the difference between the two years.

TABLE 6

Consumer Outlay—1954

Income Group of Spending Unit (Rs. Million)

Item	0-600	600-1200	1200-2400	2400-4800	4800-9600	*Over* 9600
Food.						
Rice ..	27·30..	127·42..	246·28..	152·27..	39·06..	20.68
Wheat flour ..	3·43..	25·88..	57·14..	29·15..	4·33..	1·95
Other grains ..	1·43..	7·03..	3·47..	1·22..	·17..	·45
Bread, buns, &c. ..	5·07..	18·00..	33·20..	18·75..	4·87..	3·67
Meat	2·57..	18·00..	14·68..	11·62..	5·75..	9·93
Fish	6·29..	29·54..	67·17..	38·32..	10·16..	9·07
Eggs	1·29..	1·13..	5·02..	6·32..	2·48..	4·08
Vegetable	2·93..	45·57..	89·56..	55·24..	17·39..	12·56
Condiments ..	9·29..	37·69..	75·28..	43·01..	12·89..	8·43
Coconuts	7·43..	29·54..	49·79..	27·52..	7·06..	4·81
Cooking oil ..	1·93..	8·72..	19·69..	13·05..	3·82..	4·40
Jaggery	·21..	1·41..	2·32..	3·06..	·59..	·57
Milk	2·07..	7·59..	21·23..	16·51..	10·08..	7·82
Milk products ..	·43..	1·41..	1·93..	2·04..	3·07..	5·17
Fruits	1·00..	2·25..	8·12..	6·32..	4·63..	3·49
Jam	— ..	— ..	— ..	·20..	·46..	1·02
Sweet cakes ..	·43..	·56..	3·47..	1·22..	1·93..	1·95
Beverages non-alcoholic ..	3·93..	12·94..	23·16..	16·31..	6·34..	5·21
Meals outside spending unit	3·57..	11·81..	18·14..	15·29..	2·48..	2·47
Sugar	7·29..	30·66..	57·14..	35·26..	10·76..	6·17
Other food ..	·50..	1·97..	3·48..	2·24..	·63..	·18
Sub. Total ..	88·39	419·12	800·27	494·92	148·95	114·08
Clothing.						
Clothing	8·22..	46·41..	88·39..	69·71..	23·77..	20·80
Footwear	·14..	1·41..	2·71..	2·65..	2·31..	5·10
Sub. Total ..	8·36	47·82	91·10	72·36	26·08	25·90
Housing.						
Rent, rates, &c. ..	2·57..	27·29..	32·42..	25·07..	11·09..	25·41
Medical.						
Western	— ..	1·13..	2·70..	3·06..	·17..	·73
Indigenous ..	1·00..	5·06..	8·88..	7·75..	1·93..	·45
Ceremonial ..	·50..	2·81..	6·95..	1·83..	·17..	·04
Sub. Total ..	1·50	9·00	18·53	12·64	2·27	1·22
Miscellaneous.						
Education.. ..	·50..	6·75..	12·74..	8·36..	6·17..	36·75
Trade Union Contributions	— ..	·56..	·77..	1·43..	·97..	2·29
Personal spending ..	2·22..	10·41..	19·69..	16·51..	7·31..	10·86
Betel	2·86..	13·50..	22·39..	12·03..	2·18..	1·02
Tobacco	2·79..	11·25..	24·31..	16·31..	7·43..	12·45
Beverages alcoholic ..	1·72..	10·97..	30·11..	22·63..	5·74..	12·97
Recreation ..	·79..	4·22..	23·93..	7·13..	3·92..	3·60
Transport & communication	1·57..	9·56..	21·23..	25·07..	11·17..	21·49
Personal services ..	·29..	— ..	·39..	5·70..	7·77..	10·93
Litigation	1·58..	1·41..	4·64..	1·83..	·80..	4·13
Laundry	1·14..	5·63..	14·29..	11·01..	4·96..	3·90
Fuel and Light ..	2·07..	10·97..	24·71..	18·55..	6·72..	6·86
Other	·36..	1·41..	3·86..	3·47..	·42..	15·98
Sub. Total ..	17·89	86·64	203·06	150·03	65·56	143·23
Durable Consumer Goods.						
Jewellery	·29..	4·50..	7·34..	8·15..	1·51..	21·22
Other	1·00..	5·63..	14·28..	22·83..	10·54..	12·94
Sub. Total ..	1·29	10·13	21·62	30·98	12·05	34·16
Grand Total ..	120·00	600·00	1,167.00	786·00	266·00	344·00

TABLE 7

Consumer Outlay—1966

Income Group of Spending Unit (Rs. Million)

Item	600-1200	1200-2400	2400-4800	4800-9600	*Over* 9600
Food :					
Rice	52·67	612·04	210·00	53·74	28·55
Wheat Flour	10·70	141·98	40·20	5·95	2·69
Other grains	2·91	8·63	1·69	·23	·63
Bread, buns, &c.	7·44	82·50	25·86	6·70	5·07
Meat	7·44	36·45	16·02	7·92	13·71
Fish	12·21	166·92	52·85	13·99	12·52
Eggs	·47	12·47	8·71	3·41	5·63
Vegetables	18·84	222·56	76·18	23·93	17·34
Condiments	15·58	187·07	59·32	17·74	11·64
Coconuts	12·21	123·75	37·95	9·71	6·64
Cooking oil	3·60	48·92	17·99	5·26	6·07
Jaggery	·58	5·76	4·22	·81	·78
Milk	3·14	52·76	22·77	13·87	10·80
Milk Products	·58	4·80	2·81	4·22	7·14
Fruits	·93	20·15	8·71	6·36	4·82
Jam	—	—	·28	·64	1·41
Sweet cakes	·23	8·63	1·69	2·66	2·69
Beverages non-alcoholic	5·35	57·56	22·49	8·72	7·20
Meals outside spending unit	4·88	45·09	21·08	3·40	3·41
Sugar	12·67	141·98	48·63	14·79	8·51
Other food	·81	8·63	3·09	·87	·25
Sub-Total	173·24	1,988·65	682·54	204·92	157·50
Clothing :					
Clothing	19·18	219·68	96·14	32·71	28·74
Footwear	·59	6·72	3·65	3·18	7·04
Sub-Total	19·77	226·40	99·79	35·89	35·78
Housing :					
Rent, rates, &c.	11·28	80·58	34·58	15·26	35·09
Medical :					
Western	·47	6·72	4·22	·23	1·00
Indigenous	2·09	22·06	10·68	2·66	·63
Ceremonial	1·16	17·27	2·53	·23	·06
Sub-Total	3·72	46·05	17·43	3·12	1·69
Miscellaneous :					
Education	2·79	31·66	11·53	8·50	50·74
Trade Union Contributions	·23	1·92	1·97	1·33	3·16
Personal spending	4·30	48·92	22·77	10·06	14·99
Betel	5·58	55·64	16·59	3·01	1·42
Tobacco	4·65	60·44	22·49	10·23	17·18
Beverages alcoholic	4·53	74·83	31·20	7·92	17·90
Recreation	1·74	59·48	9·84	5·37	4·98
Transport and Communication	3·95	52·76	34·58	15·37	29·67
Personal services	—	·96	7·87	10·69	15·09
Litigation	·58	11·51	2·53	1·10	5·69
Laundry	2·33	35·49	15·18	6·82	5·38
Fuel and light	4·54	61·40	25·58	9·24	9·48
Other	·58	9·59	4·80	·58	22·08
Sub-Total	35·80	504·60	206·93	90·22	197·76
Durable Consumer Goods :					
Jewellery	1·86	18·23	11·24	2·08	29·30
Other	2·33	35·49	31·49	14·51	17·88
Sub-Total	4·19	53·72	42·73	16·59	47·18
Grand Total	248·00	2,900·00	1,084·00	366·00	475·00

TABLE 8

Increase in Consumer Outlay

(Rs. Million)

Item	*Consumer Outlay in 1954*	*Consumer Outlay in 1966*	*Difference*
Food :			
Rice	613·01	957·00	343·99
Wheat Flour	121·88	201·52	79·64
Other Grains	13·77	14·09	·32
Bread, Buns, &c.	83·56	127·57	44·01
Meat	62·55	81·54	18·99
Fish	160·55	258·49	97·94
Eggs	20·32	30·69	10·37
Vegetable	223·25	358·85	135·60
Condiments	186·59	291·35	104·76
Coconuts	126·15	190·26	64·11
Cooking Oil	51·61	81·84	30·23
Jaggery	8·16	12·15	3·99
Milk	65·30	103·34	38·04
Milk Products	14·05	19·55	5·50
Fruits	25·81	40·97	15·16
Jam	1·68	2·33	·65
Sweet Cakes	9·56	15·90	6·34
Beverages non-alcoholic	67·89	101·32	33·43
Meals outside spending unit	53·76	77·86	24·10
Sugar	147·28	226·58	79·30
Other Food	9·00	13·65	4·65
Sub-Total	2,065·73	3,206·85	1,141·12
Clothing :			
Clothing	257·30	396·45	139·15
Footwear	14·32	21·18	6·86
Sub-Total	271·62	417·63	146·01
Housing :			
Rents, Rates, &c.	123·85	176·79	52·94
Medical :			
Western	7·79	12·64	4·85
Indigenous	25·07	38·12	13·05
Ceremonial	12·30	21·25	8·95
Sub-Total	45·16	72·01	26·85
Miscellaneous :			
Education	71·27	105·22	33·95
Trade Union Contributions	6·02	8·61	2·59
Personal spending	67·00	101·04	34·04
Betel	53·98	82·24	28·26
Tobacco	74·54	114·99	40·45
Beverage, Alcoholic	84·14	136·38	52·24
Recreation	43·59	81·41	37·82
Transport and Communication	90·09	136·33	46·24
Personal Services	25·08	34·61	9·53
Litigation	14·39	21·41	7·02
Laundry	40·93	65·20	24·27
Fuel and Light	69·88	110·24	40·36
Other	25·50	37·63	12·13
Sub-Total	666·41	1,035·31	368·90
Durable Consumer Goods :			
Jewellery	43·01	62·71	19·70
Other	67·22	101·70	34·48
Sub-Total	110·23	164·41	54·18
Grand Total	3,283·00	5,073·00	1,790·00

The figures above indicate a possible distribution of the additional consumption implicit in the model of growth over a twelve-year period. The consumption outlays depicted here apply only to individuals, and are exclusive of direct tax payments. Total consumption in the economy however consists of the consumption outlays of both individuals and Government in the sense of freely provided goods or services of collective consumption. It is essentially the combined aggregate of these two groups that is reflected in the overall consumption total in the model.

A level of Government consumption, reflecting the difference between total overall consumption as shown in the model and total individual consumption as revealed in the preceding table is implicit in these exercises. This level is itself the derivative of an assumption that the ratio of total Government to total individual consumption is maintained over the twelve-year period. The magnitude of the Governments consumption outlays would, however, depend on future policy. If these outlays were to be varied in the future beyond the limits indicated here, the aggregate of individual consumption would have correspondingly to be revised. There is a further factor. The outlays on consumption shown in the Consumer Finance Survey are inclusive of indirect taxes. If the indirect tax components of these outlays were known it may have been possible to separate them from these exercises. As they stand, however, the figures given above include an indirect tax element.

Once the components of increased consumption are determined it is necessary, as a further step, to derive the pattern of investment or capital formation. It is the latter which provides the basis for the formulation of specific projects. Broadly, the pattern of investment must be such as to produce the type and quantity of consumer goods indicated in the exercises above. If the average capital-output ratio which is assumed to prevail for the economy as a whole also applies to individual investments, the entire distribution of investments is simply determined. In fact, however, capital output ratios are likely to vary between different sectors and types of investment. The investment components of the additional output of each type of commodity would have, therefore, to be separately determined with reference to prevailing technology. If the assumed average capital-output ratio is correct, the total of investment needed would, of course, conform to the magnitude indicated in the model. The recently developed technique of constructing input—output tables for the economy as a whole would prove of potential use both in estimating the investment components of

given increases in output and in budgeting for the utilization of material resources in general. Tables of this nature have not, however, been constructed for Ceylon.

The determination of the broad composition of the investment total will provide the general priorities or allocations of an overall investment plan for the economy as a whole. Specific projects can then be formulated within these broad allocations. In a mixed economy these projects will be distributed between both the public and the private sectors. It is implicit in what has been said here that the private sector would enter into the planning process. The estimates or forecasts of future demand will have to be intimated to the private sector to form a basis for programmes of private investment.

It is not, of course, necessary that the investment programme should provide for the production of the whole range of additional consumer goods. The increased demand, over the estimating period, covers three categories of consumer goods. These are (*a*) consumer goods which can only be produced locally, (*b*) consumer goods which are at present imported in whole or in part but which may be replaced by local products, and (*c*) consumer goods which are wholly imported and which are unlikely to be suitable for local production. It is clear that the increased requirements of category (*a*) over the estimating period will have to be provided for by investment programmes in the relevant spheres. Category (*c*) could be met by increased exports. This suggests parallel investment programmes in the export sector to increase output to the extent required under category (*c*). Alternatively, local output under category (*b*) may be expanded by more than the amount of the increased requirement under the estimating period. This would lead to a reduction of even the existing volume of imports under this category and to a release of foreign exchange for the purchase of category (*c*) imports. The increased requirements under category (*b*) could also be met in alternative ways. They could, for instance, be produced locally by the execution of the complementary investment programmes. They could also be met by the expansion of exports. The choice between these alternatives would have to be decided upon on grounds of relative returns and in terms of such ancillary objectives as the need for diversification.

IV. EMPLOYMENT AND THE OCCUPATIONAL DISTRIBUTION

A further stage in a technique of programming is possibly the translation of derived investment and production patterns into employment aggregates.

Given an assumption concerning either capital per worker or output per worker, over the period of the exercise, it would be possible to obtain the total and distribution of employment for any given year of estimation. This result may then be broadly compared with the projected increase in the workforce. An exercise of this nature will, however, introduce a further element of arbitrariness into the technique of programming. It has not been attempted here.